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MS # P-041 n

REPRESENTATION OF ARTILLERY INTERESTS

1938 - 1945

(OKH Project # 7)

by

Wilhelm Berlin, General der Artillerie a.D.

and

Gerhard Huether, Generalmajor a.D.

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Historical Division
HEADQUARTERS
UNITED STATES ARMY, EUROPE
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EUROPEAN COMMAND
HISTORICAL DIVISION
Foreign Military Studies Branch
APO 164 US ARMY

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SUBJECT: Reviewer's Comments.

TO : Chief, Foreign Military Studies Branch.

1. The undersigned reviewed manuscript number P-041 n during the period 1-8 August 1952. The study is a portion of OKH Project Number 7, and is entitled "Representation of Artillery Interests, 1938-1945." The study was written by General der Artillerie a.D. Wilhelm Berlin and Generalmajor a.D. Gerhart Huether. The place and time of writing are unknown, but it is estimated to have been written at least four years ago.

2. The document consists of 106 pages in the original German, which has been reduced to 92 pages through translation and editing, and will probably be reduced even further in final form through the consolidation of several pages of text into two charts. It is accompanied by two appendices. Attention is invited to the fact that a correction sheet to the German typescript is submitted herewith as a result of an inquiry directed to the authors for the purpose of clarifying an obscure point in the text. The German typescript has already been forwarded to the Office of the Chief of Military History.

3. The study is concerned with the representation of artillery interests in the top-level headquarters of the German Army during the period immediately prior to and during World War II.

4. Because of the high-level organization with which this study is concerned, and the major project of which it is only a portion, it is not felt that it is of any material value to any agency within the European Command. On the other hand, it is extremely informative and valuable in its proper perspective, contains many revealing views of the thought on technical problems of German Artillery leaders, and when considered in relation to its companion pieces of the major project, will undoubtedly prove of extreme value to appropriate high-level agencies of the United States Army.

5. It is not recommended that this study be reproduced for use in the European Command.

sign. NORMAN T. WALKER,
Capt, Ord C,
Reviewer.

22 August 1952

Additional Comments by Division Chief:

1. I know the author of this article, General Berlin. He is a very able officer, and undoubtedly the leading German authority on artillery matters. His statements must be given great weight.

2. This study is of utmost importance to US officers responsible for the organization, training, and equipping of artillery units, including field artillery, AAA, rockets, and observation and other special units. It is of primary interest to the Inspector of Artillery, the Commandant, the Artillery School, and the Director of Research and Development. Since numerous assistants in those offices will require it for reference and study, I recommend that it be reproduced immediately in "parchment" and given appropriate distribution to OCAFF, to TAS, and to the Staff (particularly to O & E Branch, G-3, and to CMD, TAG).

3. Although the whole study is interesting and valuable, special attention should be directed to:

   a. Functions and responsibilities of the Inspector of Artillery, pp 3-9.

   b. Senior Officer for Observation Artillery, p 9.

   c. Discussion of flash, sound, and radar equipment, p 11 ff.

   d. Development of guns and howitzers, pp 23-31.

   e. Army and corps artillery officers, pp 31 ff.

   f. Assignment of personnel, p 38.

   g. Army magnetic service, p 67.

   The U.S. artillery has never had such a service. Perhaps a more comprehensive study onput to be done on this or any other topic of special interest.

4. The German artillery did not come up to expectations in World War II. They had good materiel, sound doctrine, and well-trained personnel. While there are numerous reasons for their substandard performance, one important cause lay in the fact that at the outbreak of the war the Inspector of Artillery was shorn of many of his responsibilities. Instead of the German Army having one man responsible for training, development, organization, doctrine and artillery personnel, these

responsibilities were distributed. The result, as General Berlin says in a masterpiece of understatement (p19), "was not solutary". The U.S. Artillery Arm is currently suffering from a like disaster visited upon it in 1942; the full effects of which are slow in making themselves felt, but certain nevertheless.

W.S. NYE
Colonel, Artillery
Chief, Historical Division

MS # P-041n

CONTENTS

Page

CHAPTER 1. TOP-LEVEL ARTILLERY REPRESENTATION UP TO MOBILIZATION IN 1939 1

I. ORGANIZATION 1

1. Mission 1
2. Composition 1
3. Chain of Command 1

II. OPERATIONS 2

III. IMPORTANCE 8

1. The Senior Artillery Officer for Observation 9
2. The Senior Artillery Officer for Home Fortifications . 15
3. The Senior Artillery Officer for Heavy Flat Trajectory Fire 15

IV. CHANGES UPON MOBILIZATION 15

1. Organization 15
2. Operations 16
3. Importance 18

CHAPTER 2. THE CHIEF ARTILLERY OFFICER WITH THE ARMY COMMANDER IN CHIEF 19

I. DEVELOPMENT AND ORGANIZATION 19

II. OPERATIONS 20

1. General 20
2. Development 23
   a. Light Guns 23
   b. Medium Guns 29
   c. Heavy Artillery 30

III. IMPORTANCE AND LATER DEVELOPMENTS 31

CHAPTER 3. THE ARTILLERY BRANCH, LATER ARTILLERY GROUP, AS AN ARMS BRANCH IN THE GENERAL ARMY OFFICE 47

I. ORGANIZATION 47

II. OPERATIONS 48

CONTENTS (CONT)

Page

1. Enlisted Men Replacements 48
2. Training 49
3. Schools 50
4. Rehabilitation of Field Army Units and New Formations . 50
5. Regulations 51
6. Development of New Equipment 52

   a. Guns 52
   b. Panzer Artillery 55
   c. Mountain Artillery 55
   d. Assault Artillery 56
   e. Army Coast Artillery 56
   f. Optical Instruments 57
   g. Fire Control Media 58

7. Methods of Fire 59
8. Rocket Development. 60
9. Army Antiaircraft Artillery 61
10. Ammunition 62
11. Observation Artillery 64
12. Weather Service 67
13. Army Magnetic Service 67
14. Motorization and Communications 68
15. The Artillery Group 68

   a. Army Antiaircraft Artillery Branch 68
   b. Rocket Artillery Branch 69
   c. Formation of the Artillery Group 69

III. IMPORTANCE 70

CHAPTER 4. THE CHIEF ARTILLERY OFFICER WITH THE ARMY HIGH COMMAND 71

ILLUSTRATIONS

Appendix 1 78
Appendix 2 79
Chart 1. 80
Chart 2. 81

The Author

Wilhelm BERLIN
General der Artillerie
Date of Birth: 28 April 1889
Place of Birth: Cologne on Rhine

BERLIN was educated as a member of the Prussian Cadet Corps at the Chief Cadet Center, Gross Lichterfelde, Berlin, from 1905-09 and graduated from there in the latter year. After undergoing further training at the Officer Candidate School, Hannover, in 1909 and at the Military Technical Academy, Berlin in 1914, he served on the western and eastern fronts during World War I as a battery commander and as adjutant for a corps artillery commander.

Between the two World Wars he served in various assignments with the field forces, as an instructor and in staff positions and when World War II broke out was in command of the 33d Artillery Regiment. His promotion to Generalmajor came in March 1940 while he was in command of the 101st Artillery Regiment on the western front, with which regiment he took part in the French Campaign. In November of the same year he was transferred to Jueterbog as commander of the artillery school there and in March 1942 was promoted Generalleutnant. He remained in this position until transferred in April 1943 to the Russian front, where he commanded the 227th Infantry Regiment in the Wolchow, Lake Ladoga and Narva sectors until assigned to the Army High Command in July 1944 as Chief Artillery Officer, which assignment he held until the end of the war. On 1 October 1944, the General was promoted General der Artillerie and in February 1945 was placed in command of the 101st Artillery Corps in the Oder defense line in addition to his duties as Chief Artillery Officer to the Army High Command.

On 8 May 1945 the General was captured by American forces at Lofer, Tyrol.

The Author

Gerhard Paul HUETHER
Generalmajor a.D.
Date of Birth: 19 December 1894
Place of Birth: Berlin.

HUETHER was assigned as a second lieutenant of artillery in 1915 and from 1916-1919 served as a battery commander.

At the end of World War I he remained in the 100,000-man Army Germany was allowed to maintain in terms of the Treaty of Versailles, and after commanding in turn a survey training battery, an artillery battalion and a survey battalion was attached as artillery staff officer to the Sixteenth Army in 1939, by which time he had reached the rank of lieutenant colonel. After taking part in the French Campaign, he was placed in command of the 14th Artillery Regiment on the eastern borders of Germany and with this regiment took part in the opening phases of the Russian Campaign.

Promoted colonel in August 1941, HUETHER was transferred to the General Army Office as Chief of the Artillery Branch. In April 1944, he was promoted Generalmajor and in December of the same year was placed in command of the 553d Volksgrenadier Division operating along the upper Rhine.

On 23 June 1945 the General was taken prisoner at Waiblingen.

CHAPTER 1

TOP-LEVEL ARTILLERY REPRESENTATION
UP TO MOBILIZATION IN 1939

I. ORGANIZATION

1. Mission. The Artillery Inspector represented artillery interests within the framework of the over-all direction of the Army, and handled all artillery questions. These included organization, equipment, training, materiel production, development, home fortifications in regard to Artillery, mobilization, and the activation of new units.

2. Composition. The Office of the Artillery Inspector consisted of the Inspector himself, his Chief of Staff, an Operations Officer, a Finance Officer, a Records Officer, and specialist officers for drafting regulations, development and production of equipment, ammunition, observation, heavy flat trajectory fire, and flat trajectory fire. He was further assisted by Senior Artillery Officers for observation, home fortifications, and heavy flat trajectory fire, and directly controlled the Artillery School and the Training School for Heavy Flat Trajectory Fire at Ruegenwalde.

3. Chain of Command. The Artillery Inspector reported directly to the Commander in Chief of the Army, but if he happened to be juniory in rank to the Chief of the General Army Office, he was under this officer for efficiency ratings and disciplinary purposes. In such event, he reported to him on those subjects and to the Commander in Chief on all other subjects. The Inspector's Chief of Staff reported to him directly except in matters of artillery organization and administration, for which he was under the Chief of the General

Army Office. The technical officers and specialists were subordinate to the Chief of Staff, while the Senior Artillery Officers and the artillery schools were under the immediate supervision of the Inspector.

II. OPERATIONS

The Inspector offered suggestions on the organization of the Artillery to the Army General Staff, which acted upon the suggestions and issued corresponding directives to be carried out by the Artillery Branch in cooperation with the General Army Office. The same procedure was followed for the equipment of the Artillery.

The Inspector had the right to inspect artillery units after obtaining permission from the commanding general of the corps concerned. He often participated in and directed maneuvers by order of the Commander in Chief of the Army or by request of the Chief of the General Staff, but generally those which he directed were for the purpose of clarifying questions of importance to training or to the development of the Artillery.

With regard to artillery training, the Artillery Inspector received directives from the Commander in Chief of the Army through the Training Branch of the General Staff, and through their execution exerted his strongest influence on training. These directives were approved by the Commander in Chief of the Army subsequent to endorsement by the sections of the General Staff concerned and other interested agencies (especially the Ordnance Office). The Inspector was particularly charged with control of gunnery training and with all questions connected there to, while tactical and general military training were handled in very close cooperation with all other agencies concerned. Regulations were issued according to this concept with the object of attaining clarity and an authoritative uniformity.

The subordination of the artillery schools to the Inspector had a very great effect on artillery training. Through the courses which he ordered at the Artillery School, and which all artillery officers had to take within a certain period of time, it was possible to exert the strongest influence on uniform artillery training. The artillery service schools, in which artillery officer replacements were trained, were under the supervision of the Inspector of Education and Training in regard to general military education and general tactical training, but otherwise were under the supervision of the Artillery Inspector.

The Artillery Inspector submitted production orders to the Ordnance Office for the production of equipment. The strength of the Army as determined by the General Staff, and the tables of equipment drawn up in cooperation with the General Staff, the General Army Office, and the Ordnance Office influenced these orders decisively. The production orders were submitted within the limits of available funds, and were based on stock reports from artillery units and the Army Ordnance Supply Office. The Ordnance Office handled the execution of the orders.

In the development of new equipment, either the Inspector made suggestions to the General Staff, or the General Staff approached him concerning its requirements. In order to be able to make useful suggestions, it was necessary to plan far ahead in order that new equipment should not become obsolete by the time of its introduction. In this respect it had to be borne in mind that although it takes eight to ten years in peacetime for a piece of heavy equipment such as a cannon to go from the planning stage to the mass production and troop delivery stage, it still must be modern when finally delivered.

In general, the Inspector, after consultation with the Ordnance Office, submitted a development program for artillery equipment to the General Staff after considering pertinent allocations of funds. After the approval of the program by the General Staff, the Inspector gave development orders to the Ordnance Office in which he precisely specified his requirements. He maintained close contact with the Ordnance Office during the entire course of development, he requested or was called in for technical experiments, and he directed the field testing of the new artillery equipment. It was the Inspector's duty to adopt new weapons for the Artillery of the Army.

In questions of artillery requirements for home fortifications, the Artillery Inspector relied on the Senior Artillery Officer for Home Fortifications. This officer handled artillery problems in the planning and development of fortifications for the Inspector for Fortifications and was therefore well-informed on the subject. The artillery officers attached to the various fortification sections were subordinated to the Senior Artillery Officer for Home Fortifications in technical matters and training. However, a difficulty in the handling of these problems arose through the fact that no clear division of jurisdiction for purely tactical and purely technical questions had been made or was not adequately recognized. Usually the local agency (corps headquarters) was responsible in tactical questions and the Inspector for Fortifications in technical questions, but what was needed was a higher office to weigh the demands of tactics and technics. To this end it would have been necessary for the Senior Artillery Officers and the Engineer Officers for Home Fortifications to be placed under the authority of the Fortifications Branch of the General Staff, or at least to be bound by the decisions of this office. This would have meant a double subordination of the Senior Artillery and Engineer Officers under the Fortifications Branch of the General Staff as well as under their respective Inspectors (Artillery, Engineers), but the effect would have been beneficial.

The Senior Artillery Officers, established in 1937 at the Army Group Headquarters for assignment in connection with home fortifications, were not placed under the Artillery Inspector and [illegible] not receive directives from him. The result was that artillery officers attached to the various fortification sectors received orders from the Senior Artillery Officer for Home Fortifications in the Artillery Inspectorate, from the Senior Artillery Officer with Army Group Headquarters, and from the Fortress Engineer's Office. Clear command channels were not established in this field until the outbreak of the war. After mobilization, and after the Senior Artillery Officers for Observation and for Heavy Flat Trajectory Fire had been transferred to the Staff of the Chief Artillery Officer, the Senior Artillery Officer for Home Fortifications, not being fully occupied in his own field, assumed the duties of these two positions under the Artillery Inspector.

In accordance with the dirctives of the General Staff and in very close cooperation with the Organization Branch and the General Army Office, the Artillery Inspector determined the artillery strength which would be applicable in case of mobilization, and in coordination with the Ordnance Depots, insured the availability of the arms and equipment which would become necessary in that event. He also assisted the General Staff in drafting the wartime organization of the Artillery.

In order to solve the above-mentioned artillery problems, it was necessary for the Inspector to work in close harmony with many other departments, and to keep in touch with the other arms of the Wehrmacht, especially with the Luftwaffe. Cooperation was guaranteed through joint conferences, joint maneuvers, and joint study of pertinent directives. Particularly close contact was maintained, and plans and experiences were freely exchanged, with the other Inspectors and with the Ordnance Office. Cooperation was extremely close on the organization and equipment of the Artillery and on the establishment of tables of organization and equipment. The agencies with whom the Artillery Inspector worked on these questions were the Organizations Branch of the General Staff (T 2), the General Army Office, the other Arms Inspectors, and especially the Field Ordnance Inspectors and the Ordnance Office.

Equally close cooperation in the field of training was effected with the Training Branch of the General Staff and with the other Arms Inspectorates, and this relationship carried over to the drafting and issuing of new artillery directives, especially where these referred to tactics and general training. The Inspector made suggestions for courses to be introduced for artillerymen as well as for members of other branches at the Artillery School.

A constant exchange of ideas took place with other Arms Inspectors in the field of training, for the various Inspectors were the final authority in special fields of training, and all units of the Army were bound by the training objectives set by their various directives. Uniform training for the entire Army in various special fields was secured through participation in courses arranged by other Inspectors. Thus the Artillery Inspector provided courses at the special requests of the Inspector for Army Motorization regarding motorization of the Artillery and of the Communications Inspector for training in signal communications for Artillery.

Inasmuch as the Artillery, or indeed the Army itself, did not have organic air units at its disposal, relations with the Luftwaffe had to be particularly close. The interests of the Artillery in the sphere of reconnaissance and action against reconnoitered objectives had to be vigorously pressed by the Artillery Inspector. Essentially the problem was to insure that the Luftwaffe had airplanes suitable for reconnaissance of artillery objectives and for the subsequent observation of the effects of artillery fire. The Inspector was responsible for the reconnoitering and the firing training of the air observers. To induce the Luftwaffe to act upon these requirements, so extremely important to the Artillery, was not easy due to the rapid growth of a Luftwaffe which was more interested in other aspects of flying. The lack of air squadrons immediately attached to the Army and available for reconnaissance had a particularly disadvantageous effect upon this type of training.

In the realm of new developments very close cooperation was necessary with various sections of the Ordnance Office, particularly with the Ordnance Testing Section. Only through a lively exchange of ideas on potential technical developments was it possible to make requests which corresponded with progress. For this purpose the constant cooperation of the technical officers of the Artillery Inspector with the corresponding technical officers of the Ordnance Office was essential. In addition, it was particularly important that these technical officers should not only collaborate with each other, but also with the ordnance engineers and armament plants concerned. These engineers appreciated being consulted during troop maneuvers, because they then saw at first hand what the troops expected from their equipment and made deductions which were particularly valuable for their work.

As in the field of training, the Inspector also represented the interests of Artillery with regard to new developments in the fields of the other Arms Inspectors. Here again, cooperation with the appropriate Inspectors in matters of army motorization, communications, and the technical aspects of home fortifications was particularly important. In the optical sphere, the Artillery Inspector represented the interests of the entire Army.

III. IMPORTANCE

The importance of the Artillery Inspector could be seen in the fact that, through direct reporting to the Commander in Chief of the Army and the lively exchange of ideas with the Chief of the General Staff, he was able to present all the problems of the Artillery to the decisive offices. From these two personalities he obtained orders, directives, or advice which he could exploit in the interest of his branch. These found expression in authoritative directives for the Artillery and in conferences conducted by the Inspector, or in instructions for training. Their rapid effect was insured by the fact that the artillery schools were under the immediate command of the Inspector. Through the courses given at these schools, in which the Inspector himself very often participated, all instructions and directives had an early and advantageous effect upon the Artillery as a whole.

Through frequent visits to artillery units, the Artillery Inspector had an opportunity to inform himself of the training status of the branch and to offer immediate suggestions. To this end it was particularly valuable that he met with the artillery chiefs (of commanding generals and division commanders), discussed artillery problems with them, and could accept their suggestions to pass on to the Commander in Chief of the Army or to the Chief of the General Staff.

Through close contact with the Army Personnel Office he was informed of all artillery position vacancies, and could look into the merits upon which appointments were based. Thus he was able to broaden his knowledge of the dispositions and abilities of the artillery officers, and had the opportunity of exercising some influence on particularly important appointments.

Through command of the Senior Artillery Officers for Observation, Home Fortifications, and Heavy Flat Trajectory Fire, the Inspector exerted influence upon problems of particular importance to these troops.

1. The Senior Artillery Officer for Observation. The position of the Senior Artillery Officer for Observation had been established at the Inspectorate on 1 October 1934, by which time there were four observation battalions, and was under the immediate authority of the Inspector. He was the latter's advisor in all questions of artillery observation and represented the interests of this service, then in the process of development, before high command agencies. His staff consisted of himself, an djutant, two draughtsmen, one typist and technical officers for flash ranging, sound ranging, and locating.

The formation of new observation battalions was carried out according to the principle that initially each corps was to have one observation battalion, and after attaining this objective, each division would have its own observation battalion. Where a Chief of Artillery had been established in the division, the observation battalions were placed under him as independent battalions, but if such a position did not exist they were placed under the Artillery Regimental Commander. A long seesaw contest was waged on whether to have independent battalions or battalions attached to artillery regiments. But as long as this branch was still new and not all regimental commanders were convinced of the value of their services and of their special requirements in training and employment, it was decided to leave the battalions independent. However, it was recognized that this service belonged to the Artillery as a whole, and in the course of time would have to become a part of every artillery regiment.

The equipment was naturally subject to continuous change and improvement. Among other things the survey batteries were equipped with a Zeiss theodolite to replace the foreign Wild theodolite, and in sound-ranging batteries the hyperbolic chart was introduced to replace the asymptote correction chart; also, the capacity of the microphones was improved, and automatic film development was installed in the oscillograph. The captive balloon was reintroduced for the flash-ranging section, and a captive helicopter was under development, which consisted of a seat for the observer, with a vertically installed propeller, and was attached to the ground by four wire cables. The propeller, electrically driven by generator trucks, enabled the observer to rise about 400 meters, and being stationary over one point, permitted cross bearings to be taken of enemy batteries. However, it was too complicated and was an easy target, so its development was discontinued. During the course of the war experiments were conducted on another helicopter (not captive), but production difficulties prevented its introduction as a finished piece of artillery equipment.

The printed forms for evaluations and calculations were constantly improved. All new equipment was tested by the Observation Training Section of the Artillery School at Jueterbog at the request of the Senior Officer, and on behalf of the Artillery Inspector he issued orders for its introduction when approved after trial.

Owing to the necessity of surveying the sound-ranging and flash-ranging sites, the tactical commitment of an observation battalion took a long time. To be ready for ranging within six hours was considered top performance. Thus the commitment of an observation battalion was not possible until an action had become somewhat stablized, and in order to use an observation battalion during an advance, certain tactical services were introduced. For this purpose, the flash-ranging battery assembled a "tactical reconnaissance platoon" consisting of two ranging stations. This platoon was attached to the advance guard, or in the event one was used, to the advance battalion. The platoon supported the units to which it was attached by reconnaissance, by adjustment of the fire of the unit's artillery when sufficiently exact maps (maps or aerial photographs 1 : 25,000) were available, and by reconnoitering objectives. Inasmuch as the platoon reported its observations by radiotelephone, it was also a favorite reconnaissance source of the higher levels of command.

The sound-ranging battery was forced to improvise in its operations. Since its radar stations were not correlated by the surveying batteries, they had to establish their relative positions by self-sound-ranging. This usually took about thirty minutes to one hour, and when they finally became operational, their findings did not correlate to known reference points on the map. Therefore the firing battery had to be adjusted in relation to the sound-ranging battery, and it became the standard practice to operate a self-propelled howitzer battery in conjunction with the sound-ranging battery. The development of equipment and its tactical commitment caused changes in the organization of the batteries, which were ordered by the Senior Officer on behalf of the Artillery Inspector. In the development of reconnaissance and fire adjustment methods, special attention was paid to the influence of the weather on gun reports, leading to constant improvements and to the use of the contour line method.

The observation battalions did not recruit their own officer replacements, but were supplied from the firing Artillery. The Senior Officer controlled these requirements by cooperating with the Army Personnel Office in selecting officers who appeared suitable, but as the number of battalions increased he confined himself to the selection of the commanders. In order not to let the officers of the observation battalions become one-sided specialists, a system was introduced whereby every battery commander and battalion commander was able to command not only an observation unit but also a corresponding unit of the firing Artillery.

The Senior Officer was charged with the supervision of uniform training in the observation battalions. In this capacity he visited the individual units by order of the Inspector and obtained an accurate picture of how the program was being carried out and of the current state of training. He attended the training of the units at their posts and on the ranges, and gave a series of lectures at the Artillery School in Jueterbog to the battalion commanders, battery commanders, and specialists. He was also charged with training the commanders of the surveying units of the artillery regiments. He annually conducted a tactical exercise lasting several days, for special training of battalion commanders, and carried out training maneuvers with the instruction unit. In addition, he prepared tactical and reconnaissance regulations for the observation battalions in cooperation with the instruction unit of the school, and had the instruction unit draw up the equipment descriptions and stowage charts.

The work of the observation battalions was greatly facilitated and speeded up when 1:25,000 maps were available. Since the various sections required many maps for their own use and since the division units had to be provided with maps in addition, the observation battalions were given a printing unit which duplicated maps by the dye-line method with the help of tracing paper. The Senior Officer cooperated on the preparation of these maps with the Chief of Mapping and Survey, and negotiated with the Luftwaffe for photographing and producing an aerial photomap 1:25,000 whenever a suitable map of an area did not exist.

The Senior Officer handled the commitment of observation units in home defense, and with the Inspector for Fortifications, he studied the plans for bunkers and their equipment in order to meet the requirements of the flash-ranging and sound-ranging batteries. While the West Wall was still under construction observation battalions prepared for any emergency, and thus the sound-ranging and flash-ranging batteries were surveyed for the entire length of the system, the computing stations and the battalion gun positions were established, the reconnaissance and fire adjustment plans were completed, and the necessary maps ere printed. For the support of the firing Artillery, insofar as its positions had been determined and were under construction, all necessary work was completed including the surveying of fire positions, establishment of base-line directions, production of firing charts, and the preparation of maps. The Senior Officer supervised the work through on-the-spot inspections of the troops committed.

Other functions of the Senior Officer included inspection of troop barracks at their peacetime stations, especially with regard to training facilities, checking of equipment storage and the administration of funds.

When the position of Chief Artillery Officer attached to the Commander in Chief of the Army was established after the beginning of the war, the Senior Officer was transferred to his office, where his duties included the tactical commitment of observation troops and the evaluation of war experiences, while all other fields were handled by the Observation Artillery Section of the Artillery Branch at the General Army Office. Therefore the function of the Senior Officer became that of a specialist.

Three important tactical innovations were introduced in the course of the war:

a. The observation battalions became too large and over equipped with vehicles, so the survey battery was dissolved. The survey unit and the computing stations were divided with one half going to the sound-ranging battery and the other half to the flash-ranging battery, while the chief of the survey battery went to the battalion commander as a staff captain. In the event of commitment he was given command of the survey units from the other two batteries, but upon completion of the action, the men were again placed at the disposal of their batteries for relief on the ranging and computing stations.

b. To meet the need for artillery reconnaissance facilities for panzer divisions, panzer observation batteries were formed on a smaller scale. The sound-ranging platoon was given only sound radio equipment and the flash-ranging battery had only three ranging stations.

c. In order to reconnoiter enemy artillery and heavy enemy infantry weapons as well, close-reconnaissance platoons with wax recording instruments were introduced in the flash-ranging batteries.

2. The Senior Artillery Officer for Home Fortifications. See pages 4-5 supra.

3. The Senior Artillery Officer for Heavy Flat Trajectory Fire. In the field of railroad artillery and heavy flat trajectory guns, the duties of the Senior Officer were the same as those of the other Senior Officers. He was the adviser of the Artillery Inspector on the development and employment of heavy flat trajectory fire, and was in close contact with the Railroad Branch of the General Staff and the railroads themselves. With the establishment of the position of Chief Artillery Officer with the Commander in Chief of the Army, this Senior Officer entered the General Staff as a specialist.

IV. CHANGES UPON MOBILIZATION

1. Organization. The duties of the Artillery Inspector were limited to those attendant upon the training of artillery replacement units within the Replacement Army, while in general the duties of the Artillery Branch of the General Army Office remained the same as the Inspector's had been in peacetime. The Artillery Branch was concerned with the organization of the units in the Field and Replacement Armies, with their activation, equipment, and training, and with artillery problems connected with mobilization. The Artillery Branch assumed the mission of production and development of artillery equipment during wartime.

The Artillery Inspector had an assistant, and exercised authority over the Senior Officer for Observation and the Senior Officer for Home Fortifications.

The Artillery Branch of the General Army Office consisted of an office chief, a record office (five employees), and section chiefs for Organization, Training and Finance (General Staff Officer, five officers, two employees), for Equipment and Ammunition (two officers, seven employees), for Home Fortifications (four officers), and for Artillery Troops (three officers, four employees).

The Artillery Inspector was subordinate to the Commander of the Replacement Army, and as mentioned above, the two Senior Artillery Officers were under him. The Chief of the Artillery Branch was under the Chief of the General Army Office, and the section chiefs and their employees were under the branch chiefs.

2. Operations. It was the responsibility of the Artillery Inspector to supervise artillery training in the Replacement Army in accordance with the directives issued by the Army High Command (Army General Staff) and the training instructions and regulations of the General Army Office. In addition, he occasionally served the corps area headquarters (military area headquarters) as technical adviser for artillery training. In order to fulfill these missions, the Artillery Inspector maintained close contact with the corps area headquarters and kept the latter informed of observations made during his visits with artillery replacement units. In addition, he was charged with the supervision of the field survey service and the weather service for all arms.

On the Artillery Inspector's suggestion, and with the permission of the Army General Staff, the Commander of the Replacement Army sent him to the artillery units of the Field Army in order to report the experiences of the front with the least delay. In this way it was possible to make prompt use of war experiences in the training and equipping of the Artillery of the Replacement Army. These activities of the Artillery Inspector remained the same until about the end of 1944.

In order to assist the Inspector in problems of home fortifications and to represent the interests of artillery affairs and training in this field, the Senior Artillery Officer for home fortifications had been placed under him. After mobilization, the duties of this Senior Artillery Officer remained the same as in peacetime, and the same difficulties prevailed as mentioned earlier (pages 4,5). In 1940 all work in the field of home fortifications, including Artillery, was placed under the Inspector for Home Fortifications, and through this change the artillery officers permanently attached to engineer sections were withdrawn from the Artillery's sphere of command. Neither the Artillery Inspector nor the Artillery Branch of the General Army Office represented the interests of the Artillery in this field any longer. Owing to the German offensives of 1940 and 1941, this measure did not have disadvantageous effects at first, since the activities of the Senior Artillery Officer for Home Fortifications had been completed for the moment. However, at the close of the Western Campaign he was charged with responsibility for Army Coast Artillery since the office of Chief of Army Coastal and Fortifications Artillery was not established until spring 1943.

In order to assist the Artillery Inspector in the training of the artillery observation units of the Replacement Army, the Senior Officer for Artillery Observation Troops had been placed under his command, but his responsibilities were the same as in peacetime.

The operational procedure of the Artillery Branch is apparent from the organization charts (chart 1). Work procedure and cooperation with other departments was the same as in peacetime, but additional duties were quickly assigned to the Artillery Branch and it was made responsible for artillery replacements and the formation of new artillery units for the Field Army. In this function it cooperated closely with the Organization Branch of the General Staff and with the General Army Office.

3. Importance. The opportunities of the Artillery Inspector to exert influence were considerably reduced compared to peacetime, since his mission was confined to the Replacement Army exclusive of the artillery schools within the structure of the Replacement Army. However, he could visit the artillery schools with the permission of the Chief of the General Army Office, in order to observe the training of artillerymen detached to the schools from the Replacement Army, and to make suggestions as to their training.

In comparison to peacetime, the Artillery Branch found its importance greatly reduced as well. Even here the contraction of the Artillery Inspector's influence made itself felt, and there was a noticeable lack of direct contact with the Field Army and a loss of influence on the training at the schools. The separation of the Artillery Branch from the person of the Inspector of Artillery was not a salutary measure.

CHAPTER 2

THE CHIEF ARTILLERY OFFICER WITH THE ARMY COMMANDER IN CHIEF

I. DEVELOPMENT AND ORGANIZATION

During the course of the Poland Campaign it was proved that the absence of the Arms Inspectors from the top level organization of the Commander in Chief of the Army meant that the individual arms were not adequately represented. There was no representative of the various arms who was responsible for the uniform training of his branch in the Field Army. Therefore the positions of Chiefs of Arms or Services were created in the middle of October 1939, and among these was the Chief Artillery Officer with the Commander in Chief of the Army.

This position was modified frequently during the war, and changes cannot be listed here in detail, but a cross-section of the activities of this office will be given. While the Chief Artillery Officer had at first been intended chiefly as the artillery adviser to the Commander in Chief of the Army, by the end of the war he had become "Inspector General of the Artillery", charged with the uniform training of both the Field and the Replacement Armies. It had also been intended at first to employ him for the direction of artillery combat at the front wherever Artillery was to be concentrated for a main effort, but such a commitment was never realized.

The Chief Artillery Officer with the Commander in Chief of the Army (later with the Chief of the Army General Staff) was the artillery adviser to that Officer. He represented the interests of the Artillery before the departments of the High Command, specifically in organization and armament, formation of units, supply and administration, training, and the development and production of artillery equipment.

The staff of the Chief Artillery Officer was composed of the Chief Artillery Officer himself, a chief of staff, a records section, and several specialists. These last covered the fields of organization and distribution of Artillery, drafting of directives, artillery observation units (including survey and weather service), and artillery equipment and ammunition (added later). Added to these were the Chief of Army AAA, the Chief of Army Coastal Artillery (Chief of Army Coastal and Fortifications Artillery after an extension of his duties), and as of 1 March 1944, the Senior Officer for Panzer Artillery, plus a few so-called traveling officers who were sent to Artillery units as the need arose.

The Chief Artillery Officer was subordinate to the Commander in Chief of the Army, and later to the Chief of the Army General Staff. His chief of staff, as well as the Chiefs of Army AAA and other artillery units, were subordinate to the Chief Artillery Officer, while the technical and traveling officers were under the chief of staff. The staff officers of the generals of the army artillery units were under these generals or their general staff chiefs.

II. OPERATIONS

1. General. In this capacity as artillery adviser to the Commander in Chie of the Army, the Chief Artillery Officer cooperated closely with all offices of the Army General Staff, and kept himself informed of the intentions of the Supreme Command in order to make appropriate recommendations for the formations of new artillery units and for the distribution of these units to army groups and armies. He had to keep sufficiently well informed on the development of new artillery weapons and on the production and distribution program of artillery equipment and ammunition so that he could make appropriate recommendations to his superiors at any time. By frequent meetings with his superiors, the Chief Artillery Officer

was able to form a picture of the intentions of the command, and could thus represent the interests of Artillery wherever the need arose.

By the maintenance of charts, the Chief Artillery Officer constantly had a general view of the actual organization and strength of the Artillery and of its distribution, and was able to give information on these subjects at any time and to make suggestions for their employment. In order to be able to do so, he also had to be informed of the condition and commitment possibilities of the individual units, which was only possible as long as he maintained close contact with the artillery staff officers at the army groups (for Artillery employed with the Field Army), and with the Artillery Section of the General Army Office (for new units formed within the command of the Replacement Army for the use of the Field Army). Very close cooperation with all departments of the Operations Section of the General Staff was also necessary.

In order to be able to make suggestions on the formation of new artillery units, the Chief Artillery Officer kept abreast of the personnel and materiel status of the Replacement Army, but only by keeping current on the supply and production situation as regards guns and ammunition could his suggestions have practical value. To this end a constant exchange of ideas with the Organization Section of the General Staff, the pertinent departments of the Chief of Supply and Administration, and the Artillery Section of the General Army Office was necessary.

An important duty of the Chief Artillery Officer was the representation of the interests of the GHQ Artillery, that is to say of Artillery which in war organization was not subordinate to the divisions, but was often switched from one authority to another. Thus it was easy for these units to suffer in the fields of soldier's welfare and decorations. In close cooperation with the staff representatives of the Artillery and later with the senior artillery commanders, it was the duty of the Chief Artillery Officer to insure that the GHQ Artillery received fair treatment.

The Chief Artillery Officer was responsible to the Commander in Chief of the Army for the uniform training of the Artillery of the Field Army, but he was hampered in this mission because except for the Field NCO School at Autun, no artillery schools were under his immediate authority. Nor was the Artillery Inspector, who was responsible for the uniform training of artillery replacements, under his authority. He therefore had to depend on the cooperation of the Artillery Inspector, the Chief of the Artillery Group in the General Army Office, and the commanders of the artillery schools, to each of whom he could express desires but could not issue orders. The same difficulties prevailed in the drafting of regulations applicable to the entire Artillery.

In order to offer suggestions on development and production of artillery equipment to the Commander in Chief of the Army, the Chief of the General Staff, or the sections of the General Staff, the Chief Artillery Officer had to remain in constant touch with the Artillery Branch of the General Army Office and with the Ordnance Office. Only by maintaining a general acquaintance with current experiments and with new developments in raw materials and plant facilities, could his suggestions carry any weight. Close cooperation with the Chief of Supply and Administration was necessary in this field.

Not all questions regarding new developments can be described in detail here, but on the whole, the general line of thought coincided with that of the Artillery section of the General Army Office. Consequently Chapter 3 may be consulted with regard to development and production, but a few ideas of the Chief Artillery Officer concerning gun development may be mentioned.

2. Development. By the outbreak of the war in 1939, the development of light and heavy guns of the "Model 18" type (such as the light field howitzer 18), had been completed. This development dated back to 1930, and the great bulk of the Artillery had been equipped with the light field howitzer 18, the heavy field howitzer 18, and the 100 mm gun 18, while most of the mortar and 150 mm gun batteries were in the process of conversion to the model 18. A variety of batteries existed for heavy high-angle and flat trajectory fire, and the development of modern guns was still in full swing.

As in every war, there was an immediate demand for decreasing the weight and increasing the range of all guns. These requirements, being at variance with each other, presented particularly difficult problems to the gun manufacturers, and were further complicated by the requirement that the guns should be adaptable as antitank weapons. If the demands for increasing range and suitability for antitank combat were to be met through construction changes, guns of the usual type would become so heavy that they would no longer be serviceable as field weapons. Generally speaking it had become evident that the technical developments in gun construction of the past 600 years had reached a sort of dead-end, and the possibilities for further improvements appeared very limited. On the other hand, certain improvements still seemed possible in projectiles, and the potentialities of the rocket (powder or fluid) had to be utilized.

a. Light Guns

The division Artillery had largely been equipped with the light field howitzer 18 by the beginning of the war. As opposed to light artillery in other armies, German divisional artillery had no 75 mm guns (except mountain guns), but used the 100 mm light field howitzer. The German High Command had found that fragmentation from the 100 mm was far greater than from the 75 mm shell, and that it had a high moral effect. Even though it was known that weight for weight the 75 mm weapon had greater range than the 100 mm, it was felt that the wider dispersion at longer ranges made the advantage unimportant. The major advantage of the 75 mm was in its higher rate of fire due to fixed ammunition, and in its adaptibility for antitank use due to flat trajectory and greater beaten zone, but nevertheless, the decision was reached in favor of the 100 mm weapon. Antitank adaptability was hoped to be achieved through ammunition, and finally some success was realized in decreasing the weight of the weapon and improving its antitank effectiveness through the adoption of the light field howitzer 18/40, which reached the delivery stage in 1940.

The need existed for a modern field gun of light weight, effective fire, carriage adaptable for antitank use, fast sighting and firing, ability to be put in firing position quickly, and a long range with a dispersion which would not be excessive up to a distance of twelve kilometers. The targets of such a weapon would include area and point objectives, tanks, and strongly resistant targets. Such a versatile gun would obviously be too heavy to be horse drawn, and would therefore have to be provided with a motor which could match the speed of marching Infantry for sustained periods of time with a minimum of fuel consumption. Motors originally failed to measure up to these requirements, and when a suitable motor was found, trouble arose from the scarcity of fuel.

These problems led to the search for another weapon which could support the Infantry in attack or defense by covering an area with effective fire within a short time. The improved rocket launcher, being easy to manufacture, light, and capable of effective fire, seemed eminently suitable for the purpose, even though it was not possible to use it against point targets or individual tanks (however, it would have been possible to use them to lay down flame thrower fuel over an area in order to deny its use by tanks).

In the opinion of the Chief Artillery Officer, an improvement of light Artillery lay in a change from rifled tubes to smooth-bore guns with jet-propelled projectiles or rockets. Equipped with guns of the rocket launcher type, light artillery would have been able to support the Infantry in attack and defense through very effective area fire, and might even have been able to protect it against mass tank attacks as well. However, the Artillery needed rifled guns for fighting point targets, and since the fire of heavy guns was superior to that of light guns as to penetration and accuracy, they would continue to be rifled while the development of light guns with rifled barrels might be disregarded with the exception of a few special types, such as antitank and assault guns.

The assault gun had been created out of the concept that Infantry was not able to launch attacks without immediate artillery support. The function of this accompanying Artillery was to quickly eliminate pockets of resistance which were encountered even after the strongest air and artillery preparation, and which held up the advance. Later, the protection of the Infantry against enemy tanks was added as a further duty.

Based on experiments and experience, an assault gun was created which proved its worth in all theaters of war. Assault guns were 75 mm tubes at first, but soon there was a demand for more effective point target fire, and to this end the assault howitzer was developed. The assault gun battery was then equipped with seven guns and three assault howitzers. The assault guns proved themselves effective antitank guns, and in the course of the war the demands made upon them became greater and greater in keeping with the appearance of heavier enemy tanks, so that their originally short barrels became longer and longer during the course of the war.

The Chief Artillery Officer ran into great difficulties in the formation of assault gun battalions, because no armored chassis could be developed to meet the requirements of the assault artillery since the necessary material allocations were not granted for this purpose. Thus Artillery was tied to the construction program of the panzers and had to adapt panzer chassis to assault guns. Nor did the Artillery receive the number of panzer chassis needed for the creation of the number of formations planned. It had been intended to place one assault gun battalion at the disposal of every corps, but conferences with the Inspector General for Panzer Troops only brought enough panzer chassis for forty-five assault gun battalions, each with three ten-gun batteries. The Chief Artillery Officer was not responsible for the development, formation, and commitment of antitank guns, but in his opinion the formation of special antitank units would not have been necessary if every infantry division had been supplied with one assault gun battalion and every regiment with one assault gun battery.

Little of significance took place in the development and introduction of mountain guns and mountain howitzers, even though the latter had proved most valuable. The development of "the light gun" (with jet-propelled projectiles), apparently remained incomplete because of operational deficiencies. The gun seemed suited for very light mobile battalions and for airborne units, and during the war the formation of one battalion was completed.

In the development of panzer artillery, the Chief Artillery Officer was influenced by many considerations. As originally organized the panzer divisions included one motorized artillery battalion, but this was later replaced by one motorized artillery regiment with two battalions of the same composition and equipment as the GHQ artillery. Opinions varied as to the necessity of such an assignment of artillery. The most extreme view was that panzer divisions did not need any artillery at all since the panzers were artillery enough by themselves. But even during peacetime maneuvers it became evident that artillery as such was an important constituent of the panzer division and that the normal composition and equipment of artillery units would not meet the requirements because it had to support the riflemen as well as the panzers.

Demand arose for the development of an armored observer's car in which armor-protected observers could accompany a tank attack and direct the fire of their batteries. Equally urgent was the demand for the development of a gun motor carriage with light armor for protection against shell fragments. It was planned to equip one battalion with gun motor carriages, while the other battalion followed in the rear, hauling its guns by prime movers.

In the Poland Campaign the artillery of the panzer division used two non-self-propelled battalions of normal composition, with slight changes in ammunition supply (more smoke and armor-piercing shells). The campaign proved the soundness of the demand for a change of armament, and emphasized the importance of Artillery for the support of panzer divisions, which led to the formation of a third battalion with heavy guns (heavy field howitzer). The formation of corps artillery or the attachment of GHQ artillery to the panzer corps was considered, and the use of howitzer and heavy flat trajectory fire battalions was planned in order to provide the panzer corps with the necessary artillery penetration.

In the campaign of May 1940, the panzer divisions went into action without armored observer's cars or gun motor carriages. However, most of the division commanders had placed observers from their panzer regiments at the disposal of their panzer artillery regiments, since they felt that the panzer attack could receive artillery support only by these means. Even though the demand for the development of a gun motor carriage proved to be justified, its lack was not felt too strongly at this time since the Artillery did not suffer under the same material difficulties as the panzers. These latter suffered serious breakdowns on the march owing to technical deficiencies in this early stage of their development, while the Artillery could enter every battle without any such impairment. Furthermore the Western Campaign also demonstrated that the panzer artillery regiments had to have its own reconnaissance media, and the formation of panzer observation batteries was ordered.

Not all requirements of gun motor carriages for light and heavy artillery (light and heavy field howitzer) could be met in the first models because of technical difficulties. The production of these vehicles depended to a large extent upon the panzer production program because they used many panzer parts, and compromise solutions to design problems resulted which, like all such solutions, had their disadvantages. Consequently the gun motor carriages for field howitzers which were introduced at the front in the course of the Russian Campaign had several deficiencies.

The qualities requested by those interested in the development of gun motor carriages (chiefly the Chief Artillery Officer, the Artillery Section of the

General Army Office, and the Ordnance Office) included prompt readiness for antitank fire, low silhouette, all-around fire ability, protection against shell fragments and direct hits, rapid arming and firing, high muzzle velocity, use of standard ammunition, and ability of the gun to be easily removed from the carriage.

The last requirement was considered essential since, in view of the shortage of artillery, it was not considered justifiable to permit a gun to drop out of action because of technical difficulties with its carriage. In the event of a carriage breakdown, it was essential to speedily transfer the gun to a replacement carriage and return it to action. Whereas the panzers could return to their bases for maintenance after the completion of an attack, the Artillery had to remain in position in order to support the riflemen, and the supply of artillery was too limited to permit replacement units to occupy positions while carriages received necessary maintenance. Carriages could not be serviced on the front, but extended periods of commitment multiplied the need for maintenance, so it was felt that this solution was the best possible under the circumstances. These requirements were fully considered in the development of new gun motor carriages, but they never reached the production stage. The development of motor carriages for howitzers and 170 mm guns, requested by Hitler, was never completed and was impracticable in the opinion of the Chief Artillery Officer.

b. Medium Guns

The medium guns generally were satisfactory, but the heavy field howitzer 18 was rather heavy for horses. The opinion was held that these batteries should march with the infantry columns, but existing vehicles did not permit such a tempo. Since the 100 mm gun 18 did not fulfill expectations (too little efficiency and too great dispersion), an increase in the range of the heavy field howitzer 18 (up to eighteen kilometers) was demanded in the belief that it could be accomplished by changes in the projectile. However, when experiments were not completely satisfactory, an accelerated development of a 128 mm gun was ordered.

The howitzer 18 was a particularly good gun with an excellent performance, being very accurate in point target combat and expecially effective against enemy infantry through ricochet fire. Despite plans for rearming the light artillery by replacing the field gun with the rocket launcher, the field howitzer was to remain in use by the division artillery and the heavy howitzer by the corps artillery. Inasmuch as the range of the 150 mm gun 18 was not satisfactory and its effect did not correspond to its great cost, the development of a 170 mm gun was ordered.

c. Heavy Artillery

It was clear by 1940 that the airplane and the rocket had rendered railroad artillery obsolescent, since its uses and its results were not commensurate with its great cost in men and materials. However, it should not be overlooked that railroad artillery had certain advantages over aerial bombing, as for example, when a large city was being shelled. Thus the approach of bombers can be detected, safety measures taken, and after their departure all becomes quiet again. In the case of long range artillery, no warning is given, safety measures are held to a minimum, and the effect on morale is far greater. Nevertheless, the Chief Artillery Officer felt that heavy flat trajectory artillery was obsolete, and that rocket fire could take its place, since the launchers were far cheaper and could be more easily camouflaged.

On the other hand he felt that heavy high angle artillery could not be dispensed with, since neither the German bombs nor their rockets, being still technically imperfect, were capable of quickly eliminating particularly resistant targets such as armored cupolas. Near the end of the war, however, further development in this field seemed unnecessary.

III. IMPORTANCE AND LATER DEVELOPMENTS

The establishment of the Chief of Arms and Services with the Commander in Chief of the Army was initially intended only to have representatives of the various arms to advise the Commander in Chief in special fields. Although at first only responsible for the uniform training of the Artillery of the Field Army, the functions of the Chief Artillery Officer became more and more extensive as the war went on, and in time he and his technical officers became indispensible co-workers in artillery matters for all pertinent offices of the General Staff. Through frequent visits with the Field Army, the Chief Artillery Officer learned the artillery needs and problems of the front by discussions with the senior artillery officers and the commanding generals of army groups and armies, and was thus able to make suggestions to the Commander in Chief of the Army and the Chief of the Army General Staff.

The problems of artillery high command became more and more important in the course of the war, and engaged his particular attention. In peacetime it had been planned to have one artillery commander attached to each division, but owing to the rapid expansion of the Army and the resulting lack of personnel, the organization of such artillery staffs had not been possible. Consequently, only few artillery command staffs existed at the beginning of the war in 1939. The campaign of autumn 1939 proved the importance of centralizing artillery command in the hands of trained personnel, and at that time the formation of a number of artillery command staffs was ordered in the hope of attaching one to every corps headquarters. The creation of enough artillery command staffs to attach one to every division, although desirable, was recognized to be impossible because of the lack of personnel.

Despite the experience of the Poland Campaign, senior field officers were divided in their opinions regarding the necessity of using a close artillery concentration at decisive points of the combat. Opinions fluctuated with the personal experiences of the officers concerned, and ran between attaching artillery command staffs to every division and dispensing with them altogether. To interpolate a personal experience, when in November 1939 I reported for duty to the Commanding General of a panzer corps with my newly formed artillery command staff, he declared that he did not know what to do with me. He could think of no situation in which he could make use of an artillery commander at corps headquarters, and felt that what ever was necessary could be handled by the division commanders through their regimental artillery commanders.

However, the Army High Command had decided, probably in consideration of the lack of personnel, that an artillery command staff be attached to corps only. Much as the decision to set up such staffs was needed, still the solution chosen presented a number of difficulties. With attachment o the corps, the question arose as to whether the Artillery Commander and his staff were only advisers of the Commanding General or should be in immediate charge of the corps' artillery as a whole. The latter solution was rightly opposed by most of the division commanders, since they could not allow themselves to be deprived of authority over the Artillery under their command. Moreover, the artillery command staffs did not have their own communications but had to depend on the media of the corps signal battalion, which weakness would be felt more in mobile than in positional warfare. With the means at its disposal, in mobile warfare the corps signal battalion would not be able to establish the communications at corps headquarters which would be necessary for centrally directed artillery.

The use of artillery command staffs at corps headquarters depended on the views of the Commanding General regarding artillery problems, as well as on the personality and tact of the Artillery Commander. If the latter was highly skilled he became an indispensable adviser in solving artillery problems, and he was able to carry his point with the division commanders if he had tact and the backing of the Commanding General. The views of the Chief Artillery Officer and the Chief of the General Staff on the use of artillery command staffs at corps headquarters, on training courses for artillery commanders and assistants, and on the conduct of artillery battles were in substantial agreement. They felt that in positional warfare the Corps Artillery Commander should be the adviser of the Commanding General on artillery problems. He should make suggestions on the distribution of the Artillery and the supply of ammunition to the divisions and be authorized, by order of the Commanding

General, to visit the division artillery units for the purpose of obtaining a clear picture of the training status and the formation of the Artillery. In these matters he would also be the artillery adviser to the division commanders.

It was often advantageous to place special artillery groups, chiefly heavy flat trajectory fire, under the divisional artillery commanders. Artillery reconnaissance media, observation battalions, balloon sections, and similar units remained under the command of the Corps Artillery Commander. Consequently, it was up to him to coordinate action against enemy artillery and to make pertinent suggestions to the Commanding General in this sphere. Through preparatory measures, the Corps Artillery Commander would have to insure that fire from a large part of the guns could be concentrated at decisive points of the corps front by corps order. Special attention was to be given to boundary positions, and he would have to insure the support of heavy infantry weapons in this fire. It would be his responsibility to see that the mass of the Artillery was able to participate in antitank combat from their positions, and that artillery commanders keep in very close contact with the infantry commanders. To this end it would be advisable that the selection of command posts take into consideration the need of maintaining a personal exchange of opinion between the infantry and artillery commanders in the combat sectors at all times.

The Chief Artillery Officer and the Chief of the General Staff felt that in mobile warfare the Corps Artillery Commander would be the artillery adviser of the Commanding General. As long as no center of gravity could be recognized or was planned, he would remain with the corps artillery (reinforcement artillery), but as soon as the center of gravity was established, or the formation of such a center was ordered, he and the bulk of the corps artillery would move to the center-of-gravity division as the Artillery Commander of the division and direct the artillery's commitment and conduct of battle according to the orders of the Division Commander. If it proved necessary to shift the center of gravity, he and the bulk of the corps artillery shifted with it. The corps signal battalion had to insure that he had the communications necessary for the conduct of battle. In case of disengagements, it could become advisable to charge the Corps Artillery Commander with the early survey and preparation of artillery defense behin the sectors.

These views became accepted procedure in the commitment and use of artillery commanders, and were a solution which seemed to promise success in many cases. According to the situation at the front, the sector widths, and the terrain configuration, other solutions also proved to be appropriate. But one thing was certain, a corps artillery commander could be effective only when he carried personal weight and enjoyed the confidence of the Commanding General and the division commanders. It was often beneficial to the Infantry if the Corps Artillery Commander was not only the adviser, but could also concentrate the fire of the entire Artillery at decisive points of the front regardless of sector boundaries. This was important in offensive as well as in defensive warfare, and the longer the war lasted, the more important became a versatile conduct of artillery action.

As in every war, the performance of the Infantry, which always made the highest sacrifices, slackened with the length of the war. The loss of strength due to the lack of battle-experienced fighters and the decline in the training of the replacements had to be made up by increased performance of the Artillery. Thus it was the constant effort of the Chief Artillery Officer to prepare for this obligation through pressure on the Artillery commanders.

During the Poland Campaign the absence of artillery representatives with the higher staffs was a source of some trouble. Therefore, in November 1939, artillery staff officers were attached to the staffs of the higher troop commands (army and army group headquarters) where they served as artillery advisers. It was their mission to keep informed on all artillery problems and to advise the command staffs accordingly. In particular they had to be constantly prepared on the organization, condition and training status of the Artillery and to make suggestions on their rehabilitation and replacement. They also had to be able to give information on the activities of committed artillery and the supply and allotment of ammunition. They maintained statistical records of enemy and friendly artillery activities, which became an important reconnaissance medium for the Military Intelligence Service since they often gave important indications of enemy intentions. Inasmuch as the graduates of the artillery schools of the Replacement Army were too few to supply the personnel needed for the Field Army, it was also a part of the work of the artillery staff officers to make suggestions on the establishment of schools and artillery courses behind the front, and to keep themselves informed on these activities.

It was particularly important for the Chief Artillery Officer to be in constant contact with the artillery staff officers. Even though there were no immediate military channels between the Chief Artillery Officer and the artillery staff officers, a lively exchange of ideas between these officers was accomplished. With the permission of the Chief of the Army General Staff, artillery bulletins were published by the Chief Artillery Officer from time to time containing all innovations in artillery and directions for training and the conduct of battle. These bulletins were primarily intended for the use of the artillery staff officers and the corps artillery commanders for the purpose of giving lectures to their unit commanders, and were distributed down to the artillery regiments and independent units.

In the course of the war it was shown that the artillery command staffs with the corps and the artillery staff officers at the higher command headquarters were not sufficient to meet all the requirements of artillery leadership. Hence the establishment of army artillery commanders was ordered, to be assigned to the army staffs in place of the artillery staff officers. It was the mission of these officers to be artillery advisers to the Commanding General of an army. If a special artillery center of gravity was to be built up, it was also intended that these commanders should assume the direction of the Artillery during such combat commitment, but unfortunately these commitments were rare.

On the other hand, the Army Artillery Commander was often given command of heavy flat trajectory units over which he exercised combat control under instructions from the Commanding General. In order to make suggestions on the attachment and subordination of GHQ artillery, the Army Artillery Commander had to keep constantly informed on their organization, the condition of the troops, and ammunition supply. As he was primarily concerned with the GHQ artillery, he was constantly concerned with its training status, its need for rehabilitation and replacement, and with insuring that it was not discriminated against in favor of the division artillery. The artillery training facilities of the army were under his command.

The activities of the army artillery commanders were very extensive and important; hence the selection of these commanders should have been handled with particular care. Only strong personalities, enjoying the complete confidence of their Commanding Generals, were in a position to handle all the problems with which they were confronted. Unfortunately, these qualifications were not always taken into consideration by the Army Personnel Office in their selection. But since the position in question did not receive any special recognition (promotion and decoration) it was held in as little favor among artillerymen as that of corps artillery commander. Both positions were considered second-rate, and artillerymen strove to become major unit commanders (Truppenfuehrer*). Owing to this personnel policy, a number of highly experienced artillery specialists were lost to artillery command, and the two positions were often occupied by personalities who were not equal to the task. Had the Personnel Office treated these artillery commanders better, it is certain that a considerable number of enthusiastic artillerymen would have remained true to their branch. This personnel policy also had an unfavorable effect on the Infantry, since the potentialities of the most useful artillery support were not realized. The Chief Artillery Officer constantly tried to change the attitude of the Army Personnel Office, but without success.

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* A Truppenfuehrer was generally commanding officer of a combined arms force.

In spite of the frequent inadequacies of these army artillery commanders, on the whole the installation of such staffs proved their value. The idea of a very firm control of the Artillery had gradually gained acceptance and most army commanding generals evidenced confidence in their artillery commanders by consulting them on all artillery problems.

In the autumn of 1944 five artillery staffs under the designation of "General der Artillerie No. 1 to 5*" were established and attached to army group staffs in which special actions were to be expected. The commander of these staffs were artillery advisers to the commanding generals of the army groups and technical superiors of the army and corps artillery commanders. In case of a heavy artillery commitment, it was expected that they would assume immediate direction of the Artillery on the battle field. In order to achieve effective use of the Artillery, it was contemplated that the commitment of artillery command staffs was to take place in such a way that every division with a center-of-gravity mission would be given corps artillery staffs, every corps headquarters would receive an army artillery staff, and every army a General der Artillerie staff. However, the war came to an end before this plan could be translated into action.

At first the powers of control of the Chief Artillery Officer were very limited in the field of training. No installations existed for the training and development of artillery officers in the Field Army since replacements were supplied from the Replacement Army, which controlled the artillery schools.

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* The term "General der Artillerie" here means Army Group Level Artillery Staff. It should be borne in mind that this term also means Chief Artillery Officer in a certain sense, and the rank of Lieutenant General of Artillery in another. When left untranslated, it will indicate the first meaning above - Ed.

During the course of the war, however, it became necessary to detach officers from the Field Army to the schools in order to prepare them for new missions, and to take steps toward uniform training of officers in light of current experience. The Artillery School at Jueterbog seemed ideal for the purpose, since it had adequate instructors and firing ranges, but because it was needed for the training of replacements by the Replacement Army, there were not sufficient spaces for the Field Army. Special artillery schools were set up behind the front, but difficulties in providing personnel, instructors, and adequate ranges, plus the fact that distance factors made it impossible for the Chief Artillery Officer to supervise them adequately, made it desirable to unite them under one staff. However the effort failed due to lack of personnel.

The Chief Artillery Officer had no command authority even over the Jueterbog Artillery School, but could only voice wishes concerning the training and courses given there. The artillery schools were initially under the Chief of the General Army Office, who was unable to adequately control the training because of an overload of work in other fields. Therefore, when it became apparent in 1941 that Jueterbog could not conduct courses for regimental artillery commanders, the Chief Artillery Officer suggested that another school be established for the purpose. On the basis of principle, this school (Artillery School No 1 at Berlin) was also placed under the Chief of the General Army Office, but since he could not devote sufficient attention to insure uniform training at both schools, the officer trained at the two schools received divergent viewpoints.

The Chief Artillery Officer was forced to rely on the good will of the Artillery Branch of the General Army Office, in its capacity as adviser to the Chief of the General Army Office, and on that of the commandants of the schools. When, due to work overload, the Chief of the General Army Office transferred all artillery schools in the Replacement Army to the Chief of the Training Branch, the situation was but slightly improved, since an over-all coordination of all artillery schools was still not achieved. But nearly in 1945 all artillery schools were placed under the Inspector of Artillery, who was subordinate to the Chief Artillery Officer, which improved the situation. Although the schools for non-commissioned officers, and for officer replacements were not under his direct control, he was authorized to issue binding directives covering the training there.

In order to insure uniform interpretation of technical and general problems within the Artillery, the Chief Artillery Officer from time to time published artillery bulletins as mentioned above. These contained all changes and improvements in the fields of artillery tactics and techniques. The drafting of regulations, which had to be submitted to the Commander in Chief of the Army or to the Chief of the Army General Staff for approval, presented considerable difficulties. Even though many problems could be cleared up through experience reports from front line artillery units or through visits to the front, a staff was lacking which could carry out necessary experiments or do the detail work that often could only have been handled by testing units. The gunnery field manual, for instance, had to be redrafted and republished on the basis of war experience only after numerous firing tests. In addition, the Chief Artillery Officer had to rely in this field on the colloboration of the Artillery Branch of the General Army Office and the artillery schools.

The organization and training of Antiaircraft Artillery was under the Artillery Inspector until the Luftwaffe assumed the responsibility in 1934. From the very beginning of the war it was shown that the fears expressed at the time to the effect that the Luftwaffe would not supply sufficient forces for the protection of the Army were fully justified. The Antiaircraft Artillery was bound to consider the protection of industry and the installations of the Luftwaffe both in the field and in the Zone of the Interior as its first duty. Though numerous units were organized, these missions tied up so many of them that the Antiaircraft Artillery protection of the Army was inadequate. Recognition of this fact led the Army to form its own antiaircraft units. It was not possible in the middle of the war to set up an entirely new organization for the development and production of antiaircraft equipment, and the Army was closely linked with the corresponding departments of the Luftwaffe in this field. Antiaircraft equipment (guns, computers and special equipment) from Luftwaffe production sources was allocated for the formation of the Army Antiaircraft Artillery units.

The Chief of Army Antiaircraft Artillery, a subordinate of the Chief Artillery Officer, was responsible for the organization and training of Army Antiaircraft Artillery units. To form the required units quickly, the training of specialists took place at Luftwaffe schools, and for the most part the training and gunnery field manuals of the Luftwaffe were adopted.

With the enemy's air superiority becoming ever greater as the war went on, the requirements of the Antiaircraft Artillery became correspondingly greater, so that the Luftwaffe had to keep organizing new antiaircraft formations. But since the production program could not keep pace with this expansion, the formation of adequate units for protection of the Army against air attacks was not possible. Thus numerous antiaircraft units of the Luftwaffe remained with the Army. The panzer divisions, being particularly vulnerable to air attacks, were the first units to be equipped, each receiving one Army Antiaircraft Artillery battalion.

The Chief Artillery Officer felt that in the future every army would have to have sufficient antiaircraft units of its own. The protection of the Zone of the Interior and of the installations of the Luftwaffe should be a matter for the Luftwaffe, while the protection of the Army would be handled by its own units.

After the campaign of 1940, the protection of long coastal fronts had to be assumed as a further duty. Whereas the protection of the German coast had hitherto been the duty of the Navy, it was not strong enough in men or materiel to assume the protection of the newly added coastal fronts, and it became the duty of the Artillery to supplement the Navy Artillery for the protection of these coastal fronts. Although artillery units of the Army had been trained in coastal artillery before World War I, and had functioned as such during the war, nothing had been done in this respect until 1940.

Artillery units still attached to the various home fortifications served as cadres for the formation of coast artillery units. Captured guns were used for armament to a large extent, and were installed with devices for firing at sea targets (swivels and the like). A new artillery school was established to provide training in firing against sea targets because this type of combat confronted the Artillery with new problems. Very shortly after the orders had been issued, the first batteries were ready for defense along the coast.

The performance of the Army Coast Artillery suffered greatly from the fact that batteries of the Army and of the Navy were often committed in close proximity to each other with the same assignment, yet without clear command channels. There were constant differences of opinion between the tactical headquarters of the Army and those of the Navy as to the use and commitment of the Coast Artillery. Clear channels, satisfactory to all sides, had not even been established by the end of the war. Since a decision by the Wehrmacht High Command could not be obtained until the end, everything was always left to local agreements and the mediating influence of the Chief of Coast Artillery, a position which, unfortunately, was not established until 1943.

In a well disciplined organization, the Naval Operations Staff held the commitment and organization of every battery, centrally controlled, firmly in its hands. This was relatively easy, since only naval sectors and points of strategic naval importance, such as the protection of sea routes, had been equipped with naval artillery. These batteries were initially installed only for firing at sea targets.

When the Army Coast Artillery was put into service, it was required to be so set up as to serve against both sea and land targets. For coastal defense, however, two commands had been established with different objectives, and each needed the batteries of the other's coast artillery for the accomplishment of its mission. The naval authorities, generally the Naval Commander himself, directed combat sea targets, while the local commander took over against an enemy which had landed. The first mission was best aided when the batteries were located as closely as possible to the coast, in open firing position, whereas the second required emplacement in depth. This situation resulted in frequent changes of position, faulty emplacements, and confusion in the tactical direction of the Coast Artillery. At army command posts there was often a lack of understanding regarding the requirements for firing at sea targets, while the Navy similarly had to adjust itself to fighting against land targets. The directives issued in autumn 1943 regarding combat procedure along the coastal fronts did not embody a clear decision, but said only that the entire coast artillery was to be under the direction of the Navy when fighting sea targets, and under the direction of the tactical command posts when fighting land targets.

The Chief Artillery Officer had suggested that a choice be made between placing the entire coast artillery under the Navy or creating a uniform coast artillery under the Chief of Coast Artillery. However, both suggestions were rejected and this uncertain chain of command remained until the very end.

The Army Coast Artillery was organized in coast artillery battalions, and regiments and artillery command staffs were added later. These had to contend with the existing uncertainty of command and to get the most out of their batteries, which was not easy since they were short of personnel and the equipment had for the most part been adapted for the purpose in a makeshift way. But in spite of difficulties, the Coast Artillery generally measured up to all expectations.

By beginning of the war fortification artillery cadres had been established for manning antitank batteries and artillery close combat installations, but further development was discontinued at that time. The few batteries committed were used in other fronts at the conclusion of the French Campaign of 1940. When the German borders were threatened by the invasion in summer 1944, the Fortification Artillery was reorganized. The Chief of Army Coast Artillery was charged with this field, and his title was changed to Chief of Army Coast and Fortification Artillery. By autumn 1944 it was possible to organize quite a number of passably equipped fortification artillery regimental staffs, battalions, and batteries, but later formations suffered greatly by enemy action and frequently could not become effective. Owing to the surprising breakthroughs on the Eastern and Western Fronts, the local commanders often withdrew batteries from fortified sectors in order to use them for the support of their front, and when these fortified sectors had to be defended later, the absence of the batteries was often decisive. The organization of the Fortifications Artillery in 1944 was an absolute makeshift, yet it was possible to commit quite a number of formations according to plan and these generally measured up to expectations.

On the staff of the Chief Artillery Officer was the Senior Officer for Panzer Artillery, who had the responsibility of handling all questions concerning panzer artillery and making suggestions for the development and commitment of this branch. In coordination with the Artillery Group of the General Army Office and the Inspector General of Panzer Troops, he was concerned with the production program and the development of gun motor carriages. Aside from his responsibilities with the Panzer Artillery, he was also technical adviser for assault artillery on the staff of the Chief Artillery Officer, and directed special attention to the training courses on gun motor carriages and assault guns at Artillery School I and at the Assault Gun School.

CHAPTER 3

THE ARTILLERY BRANCH, LATER ARTILLERY GROUP, AS AN ARMS BRANCH IN THE GENERAL ARMY OFFICE

I. ORGANIZATION

During the entire war the mission of the Artillery Branch remained as described in Chapter 1, but the various departments were considerably enlarged with the expansion of the war. New arms, such as panzer artillery, panzer observation batteries, army coast artillery, and rocket artillery were established. The problem of enlisted men replacement proved to be particularly difficult and far reaching, and new schools for ever broadening training programs were installed.

The Artillery was organized with branches for heavy, panzer, assault, railroad, rocket, army antiaircraft, and army coast artillery, plus the light and medium artillery of the Field Army. Other services provided by the Artillery included observation, panzer observation, and mapping and survey battalions, meteorological and direction-finding platoons, printing and magnetic survey units, and operations survey for command agencies. After 1942 Artillery School I was available for training of regimental commanders, Artillery School II for all officers up to and including battalion commanders, and Artillery School III for officer candidates. At the same time the Artillery had special schools including the NCO School, Mountain Artillery School, Assault Gun School, Railroad Artillery School, and the Army Coast Artillery School. In 1943 the School for Army Coast Artillery Direction-Finding Equipment was added, while the Fortifications Artillery School was established in 1944.

The composition of the Artillery Branch of the General Army Office as of October 1939 is indicated in Chart 2. The Chief of the Artillery Branch was under the command of the Chief of the General Army Office, and the section chiefs were under the Branch Chief. The Branch was the executive office for the Artillery Inspector, the Inspector of Army Antiaircraft Artillery, and the Chief of Army Coast and Fortifications Artillery. Since the Chief of the General Army Office was too overburdened with other tasks to concern himself with the details of training, the Office of the Chief of Training was established in 1942, and the Artillery Branch was subordinated to it in all training matters.

The Mountain Artillery School, the Assault Gun School, the Range-Finding School, the Railroad Artillery School, the Fortifications Artillery School, and the School for Direction-Finding Equipment for Army Coast Artillery were all subordinate to the Artillery Branch. Artillery Schools I and II and the Coast Artillery School were under the immediate authority of the Chief of Training, while Artillery School III (Officer Candidate School) and the Noncommissioned Officer School were under the Inspector General for Officer Replacements.

II. OPERATIONS

1. Enlisted men replacements. Enlisted replacements were allotted to the Artillery Branch by the General Army Office. The number fluctuated since occupational deferments in armament industries, farming transportation, and other industries prevented filling the requirements of the General Army Office. This shortage was passed along to the Artillery in filling its requests for enlisted personnel, and consequently the combat units sometimes had to wait a long time for replacements. Toward the end of the war new formations could not be organized at full strength and the strength of batteries had to be reduced repeatedly. During its entire existence, the Army Coast Artillery was so short of personnel that each man was forced to perform the duties of several men.

The assignment of intellectually adaptable recruits, as was absolutely necessary for the observation battalions and signal units who proportionately were experiencing the highest casualties of the Artillery, became impossible as time went on. Plentiful and capable replacements were available only for the assault artillery, since they were recruited almost entirely from volunteers, some even from the Field Army.

Enlisted replacements consisted of untrained recruits and men hitherto on occupational deferment, but who had already received training. The Artillery Branch assigned these men to replacement and training units. Every replacement and training division had one replacement and training artillery regiment, and there were similar battalions for assault guns, antiaircraft artillery and observation. The remaining branches of the Artillery did not have their own training units; replacements for them were taken from the replacement and training regiments and trained in their special fields at appropriate schools.

2. Training. The Artillery Inspector was responsible for the training of the Artillery. The Artillery Branch was his executive office for this purpose and had to see that the replacement units were equipped with sufficient personnel and materiel. The Chief of the Artillery Branch was authorized, with the permission of the corps headquarters concerned, to visit the training units and to inform himself as to the quality of the replacements, instructors, and materiel. He reported the results of his visits to the Artillery Inspector and to the Chief of Training.

Normal training consisted of three months of basic training and three months of special training (gunners, telephonists, radio operators, survey men, flash-ranging men, and other artillery specialists). For all artillery branches which did not have their own training units, enlisted men who had completed basic training were trained at the various schools in special fields, where they remained until assigned to field units.

3. Schools. The Artillery Branch provided suitable instructors and equipment for the schools through close cooperation with the Army Personnel Office and the commandants concerned. The Chief of the Artillery Branch was authorized to visit the schools in order to inform himself of the status of equipment and to report his findings to the Inspector of Training. The instruction cadres of the schools were at the disposal of the Artillery Branch for field tests pursuant to instructions by the Branch on order of the General Army Office. The courses at the schools for members of the Field Army were set up in cooperation with the Chief Artillery Officer, who also selected the student body; for members of the Replacement Army, the courses were set up and the enrollment made by the Artillery Branch. In addition, the Army Personnel Office selected students for Artillery Schools I and II, and the Inspector General for Officer Replacements selected students for Artillery Schools II and III.

4. Rehabilitation of Field Army Units and New Formations. The rehabilitation of complete divisions was handled by the General Army Office, and independent artillery units were assigned to a corps headquarters by the Artillery Branch on behalf of the General Army Office, which corps headquarters was then responsible for rehabilitation. Units which did not have organic replacement elements were sent to schools for rehabilitation.

The Artillery Branch received orders to set up new formations from the General Army Office. As in the case of rehabilitation, and again on behalf of the General Army Office, the Artillery Branch charged a corps headquarters or a school with setting up the formation. With the increasing lack of personnel and equipment toward the end of the war, specialists of the Artillery Branch visited the units to be formed or rehabilitated and filled vacancies through the immediate assignment of men from other military areas and by procuring equipment directly from the Ordnance Service. New formations of the assault artillery were set up only at the Assault Gun School without regard to existing replacement units, so that the new unit could receive fire training with live ammunition on the school's artillery range and gain other practical training while it was being organized.

5. Regulations. Regulations were drafted through close cooperation between the Chief Artillery Officer and the Training Branch of the General Staff, and were sent to the Chief Artillery Officer for publication. Training films, equipment descriptions, and stowage charts were made in collaboration with the schools and were introduced by the Commander of the Replacement Army after having been checked by the Chief of Training and the Artillery Inspector. All directives for the Army Coast and Fortifications Artillery were drawn up by the Chief of that service, while instructions to the Luftwaffe Antiaircraft Artillery largely applied to the Army Antiaircraft Artillery also.

The Artillery Branch assisted the press by checking articles on artillery subjects sent to them for this purpose, and it also published articles of its own for recruiting volunteers for the assault artillery or to publicize outstanding performances. The professional artillery publication - "Die Artilleristische Rundschau" (Artillery Review) - was checked by the Artillery Branch and the Chief Artillery Officer before publication, both of whom also supported the publishing house by supplying it with articles and toward the end of the war, even with paper.

6. Development of New Equipment.

a. Guns. During the rapid campaigns against Poland and France, the model 18 guns in general use among the troops (light field howitzer 18, heavy field howitzer 18, and 100 mm gun 18) had fully proved their worth. But soon after the beginning of the war the demand arose to increase their range, to equip them for all-around fire, and to make them lighter. The problem was complex because, owing to ammunition production problems, the increased range had to be achieved with supplementary charges for same ammunition used hitherto. The range was to be increased to thirteen kilometers for the light field howitzer, and to eighteen kilometers in the case of the field howitzer. The 100 mm gun 18, with a range of nineteen kilometers but great dispersion at distances over fifteen kilometers, and with small individual burst effect, was to be replaced by a 128 mm gun.

The model introduced in 1942 did meet the requirements of greater range and all-around fire, and instead of being lighter, it had become so heavy that it could no longer be considered a field gun. It could only be moved by power traction, and hence was not suited for infantry divisions. In addition it could not fire from wheel mounts, but had to be placed on outriggers, and therefore was not so quickly readied for action.

Since this weapon was not satisfactory, increased range through the ammunition was again emphasized. The demand of all-around fire was dropped for the time being, though in the case of the light field howitzer 18 this facility was improvised through the use of a steel base plate on which the gun was mounted and locked. The Ordnance Office succeeded in reducing the weight of the light Field Howitzer 18 and it was brought into use by the horse-drawn artillery as the light field howitzer 18/40.

From 1942 on, the light and heavy field howitzers 18 were equipped with muzzle brakes, which permitted the more frequent use of special charges without overtaxing the equipment, and thus enabled them to fire over greater distances. The 128 mm gun underwent further development, and since the Luftwaffe and the Navy had also adopted this caliber, experiences were available to accelerate development. In 1944 this gun was brought into service.

The 110 mm gun had been introduced in 1940, and the 210 mm gun of only slightly greater range was replaced by a 240 mm gun of superior range and effectiveness. However, developments along this line were not completed. A plan to remove the K.5 (250 mm railroad gun) from the tracks and move it like the K.3 (240 mm motorized) as a self-propelled gun mounted on several vehicles failed because of a lack of the Tiger panzer chassis which were required for the project. A 350 mm howitzer propelled by power traction was introduced in 1943, and seven guns of this type were completed. In 1941 the self-propelled 600 mm howitzer was introduced, but its range was too small, being only eight kilometers with light projectiles and six kilometers with heavy projectiles. Seven guns of this type were also completed.

The Dora gun, an 800 mm railroad gun which fired from two tracks and had a range of forty kilometers, and was intended for action against fortresses, was expected to be provided with a smaller caliber barrel (forty to sixty mm). It was expected that the change would increase its range to 120 kilometers, but the development never took place. The Dora gun had been brought into action at Sevastopol, but owing to its gigantic proportions it could not be camouflaged and was an easy target for air attacks. Thus several antiaircraft battalions were tied down just for the protection of this one gun during the period of its commitment, and 3,000 men were required to bring it into firing position. The development of this gun, just as the above-mentioned development of the model 18 guns, showed clearly that the traditional trend in artillery had reached a final point, and that new lines of development had to be found.

Experiments were carried out to determine whether the sliding square-wedge breechblock could be replaced by the interrupted-screw type, but the answer had not been found by the end of the war. The Artillery Branch considered the sliding square-wedge more suitable in actual practice.

A development which had not been requested by the military, and which had been rejected by the Chief Artillery Officer and the Artillery Branch, was the development of the "Tausendfuessler" (millepede) gun. This was a gun with an immovable barrel 120 meters long, and which could not be moved laterally in any way; once built-in, the barrel could fire only in one direction. Booster charges were to be inserted along the bottom and on either side of the barrel at intervals of about three meters, and the gun was to fire a 170 mm projectile over a distance of 120 kilometers. However, this gun did not come into service.

In autumn 1944, the Chief Artillery Officer was instructed to bring a thousand guns to the front, and 76 mm and 88 mm antitank guns being available in sufficient numbers, they were modified for use by the Artillery to alleviate the shortage. These modifications included different sighting devices and ammunition with several increments.

b. Panzer Artillery. Neither the light nor the heavy field howitzer 18 used by the panzer divisions could follow tanks through every terrain. Since they were drawn by prime movers, the gun crews sustained heavy casualties on these unprotected vehicles, and armored self-propelled artillery with all-around fire was requested for the panzer divisions. An additional requirement was that the guns be easily transferable to other carriages.

At first the Artillery had been granted a special allocation of Panther and Tiger tank chassis for self-propelled mounts, but it had to be withdrawn because of difficulties in production. Therefore the chassis of the Panzer II was allocated for the light field howitzer 18, and that of the Panzer III for the heavy field howitzer 18. As long as the Artillery had to depend on these panzer types, all-around fire and transferability of guns had to be dropped, but the earlier tests were continued in case Panther and Tiger chassis should subsequently become available. The development of an armored observer's car and armored ammunition trucks went hand in hand with the development of armored guns.

Hitler's demand for 210 mm howitzers and 170 mm guns on self-propelled mounts likewise depended on the use of the Tiger chassis, so this development also could not be immediately pursued. Tests along this line were continued however, even though these weapons were not considered urgent by the Artillery.

c. Mountain Artillery. The Mountain Artillery was equipped with a very good gun, the mountain howitzer 40, which had a range of 12 kilometers and all-around fire. It could be taken apart to make seven loads for transportation on mules or sleds, and could be pulled as a single load over short distances. An improved 75 mm mountain gun with all-around fire and greater range was under development, but was never completed.

d. Assault Artillery. The Assault Artillery was at first armed with the 75 mm gun on the Panzer III without cupola. In order to provide a gun which would be more effective against infantry targets, the light field howitzer 18 was also built into the Panzer III without cupola as an assault gun. Each battery was equipped with three field howitzer assault guns and seven 75 mm assault guns.

e. Army Coast Artillery. Coast artillery was a completely new field for the Artillery, for unlike World War I, no artillery regiments had concerned themselves with coastal defense missions prior to the war. Hence there was no modern experience in the field. Apart from coast railroad artillery, a few 170 mm and 210 mm guns, and some 210 mm howitzer batteries, the Army Coast Artillery was armed almost exclusively with captured Russian, French, Belgian, Dutch, Danish, Norwegian, and Yugoslavian weapons. Most of them had been captured without optical equipment, so that it was necessary to develop and produce the necessary instruments. In order to combat moving targets at sea with the requisite firing speed, the guns were mounted on pivot bases and turned by a crew operated chain gear, and these bases had to be developed, tested, and produced for each type of gun. Owing to the increasing enemy air superiority, in 1943 Hitler ordered that the entire Coast Artillery be put into concrete emplacements, and observation bunkers and embrasured gun positions were developed jointly with the Fortifications Inspector and the Chief Engineer and Fortifications

Officer. It became clear that the embrasured gun positions would be too large if the guns were mounted on pivot bases, so pedestals were developed, tested, and produced for all gun types. Inasmuch as special pedestals were required for each of these numerous types of captured guns, the constructors were faced with an immense task.

f. Optical Instruments. As already mentioned, the development of optical instruments for captured guns was a huge assignment, but since the production of panoramic telescopes and periscopic sights was not even sufficient for the German guns, improvised gadgets of simpler construction were developed and introduced to fill these requirements.

A stereoscopic range finder with a 1.2 meter base was developed and supplied to artillery observers from 1943 onward. This instrument was not completely satisfactory since not every human eye is able to see stereoscopically, and it was unreliable at distances over 3,000 meters. Consequently a more reliable and easily operated range finder was demanded by the troops.

A route tracing instrument was under development for armored observers' cars. The purpose of the device was to show the exact location of the vehicle at all times when travelling over such trackless terrain as the African deserts or the Russian steppes. Initial inaccuracies of the instrument's findings, and the later loss of the areas in which it was expected to be used led to the abandonment of the project.

A small but handy piece of equipment was introduced for use by advanced observers, who because of their advanced positions often could not use periscopic sights for taking exact bearings. The device, upon which field glasses could be mounted, was equipped with an aiming circle which facilitated the taking of lateral bearings. The plotting collimeter and the aiming circle collimeter was also developed. The former eliminated the lateral deviation of fire which appeared in the use of telescopic sights under extreme traverse of the gun. The aiming circle collimeter combined the sighting device of the aiming circle with the reference points of the plotting collimeter. However, the Chief Artillery Officer felt that it was not necessary, and heavy artillery was equipped only with the plotting collimeter.

A thermo-locator was introduced for the Coast Artillery. The instrument fixed the position of ships at night or in poor visibility through the heat of their engines. This equipment fully proved its effectiveness and value.

g. Fire Control Media. To facilitate firing adjustment and fire for effect, an instrument called the "Schiessplatte" was introduced which made it possible to place the first round in the immediate vicinity of the target.

German Artillery placed the highest value on concentrated fire, and in order to have a major unit (18 atteries) ready for concentrated fire within two to three minutes, the ballistic director was developed by the Ordnance Office. In all, three of these instruments were produced by the end of 1944, and were used to organize three fire-control batteries involved a high commitment of men, vehicles, and radios. Not enough combat experience had been gained by the end of the war to be able to determine whether the performance of the equipment corresponded to this great outlay. For the fast computation of firing commands in map fire in which the weather had to be taken into account, the

Pulkowski meteorlogical computer was introduced. This device was an improvement of the existing Pank artillery slide rule.

The most important need of the Coast Artillery was the rapid development of simple fire control devices which could be produced without delay. Such equipment was not available from Navy sources, and the instruments used by the Navy were too complicated and expensive. The distance and direction calculating watch and the long-base range finder were developed in collaboration with the Army Ordnance Office. When firing with the long-base range finder, the observation post had to be close to the firing position, which meant that the firing positions had to be built close to the coast. But the trend was to echelon the coast artillery in depth, since it would have to fight land as well as sea targets within the depth of the main defensive area in the event of invasion. Therefore fire-control equipment PPP 1 was taken over, since this equipment made it possible to locate the observation post at any desired distance from the firing position. This equipment was an instrument developed by the Skoda works for the Turkish artillery on the Dardanelles. Unfortunately only eleven such instruments were available, and it had the disadvantage of not being exchangeable between the different types of guns because certain parts of the instrument had to be specially manufactured for whatever type of gun was to be committed. Thus it was not suited for large-scale use, but the 210 mm gun batteries and a few 170 mm batteries along the Channel Coast were hooked up with the existing eleven instruments.

7. Methods of Fire. Aside from small improvements in the customary method of fire, the most important wartime innovation was a system of

accelerated surveying based on air bursts, which permitted the fast concentration of fire from several batteries. Very useful firing data can be obtained for one battalion by this method, but it is not exact enough for larger units.

8. Rocket Development. In spite of the above-described results in gun development, the Artillery considered the rocket the modern field of artillery development. Therefore, the Artillery Branch closely followed the Ordnance Office experiments with the fluid-driven rocket V 2 and those of the Rheinmetall firm with the powder-driven rocket "Rheinbote"*. As soon as final results could be recognized and an early commitment appeared feasible, the Artillery Branch organized and trained a battalion for each of the two rocket types.

Sponsored by the Artillery Branch, the first rocket units reached the front at the end of 1944, and although sufficient experience reports did not reach the Artillery Branch, certain conclusions were possible. It was felt that increase in range is unlimited, but that fluid-driven rockets are more complicated than powder-driven rockets, and thus present more difficulties in training. Servicing crews and motor vehicle requirements are not essentially greater than for a normal artillery battalion, but they are greater for fluid-driven rockets than for powder-driven rockets. The firing stands are small and easy to transport and camouflage, and those for the V 2 can be located among tall trees. The Artillery Branch felt that the powder-driven rocket can be developed for firing over short distances, but the dispersion of both rocket types is still too great.

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* This term means "Messenger from the Rhine" - Ed.

9. Army Antiaircraft Artillery. While in the 100,000-man Army the Artillery was still concerned with the problems of antiaircraft defense, this responsibility was completely transferred to the Luftwaffe in the course of its organization. The Army concerned itself only with the problems of field antiaircraft defense, which is to say defense against tactical-support attacks. However, its batteries were poorly armed for purpose, and until the end of the war they had nothing more than light infantry machine guns mounted on pedestals.

During the rapid campaigns in Poland and France, when Germany's air superiority was complete, the protection of the fighting troops was sufficiently guaranteed by the antiaircraft artillery units of the Luftwaffe. But even then the need for Army antiaircraft artillery had already been felt. With the increase of air raids in the Zone of the Interior and on important objectives in the occupied areas, the Luftwaffe antiaircraft artillery was more and more tied down, and its protection no longer sufficed for the Army. In addition, it was proved that antiaircraft artillery units were more effective as organic components of divisions, and fully familiar with their combat procedures. Therefore it was ordered that Army antiaircraft artillery units be formed by the Artillery, and their interests were represented by an Army Antiaircraft Artillery Section in the Artillery Branch.

The Artillery Branch did not carry out any new developments in the field, but followed the lead of the Luftwaffe. The batteries were equipped with 88 mm and 37 mm guns, and while regular training took place in replacement and training battalions of the Army Antiaircraft Artillery, specialized training (data computing, range finding) was given at Luftwaffe schools and training with live ammunition at Luftwaffe training grounds. All regulations were also largely taken from the

Luftwaffe. This dependence on the Luftwaffe meant that no activities of the Army Antiaircraft Artillery Section could be coordinated with those of sections in the Artillery Branch, and it had to have its own specialists for every field. Hence, from the beginning it constituted a small branch of its own within the Artillery Branch, and as the tactical units became larger and their activities increased, this section evolved into the Army Antiaircraft Artillery Branch.

10. Ammunition. In cooperation with the Ordnance Office, the Artillery Branch was responsible for ammunition production for the heavy artillery because those units were returned to the Zone of Interior after every combat mission. There it was re-equipped for its next mission by the Artillery Branch in accordance with instruction of the Chief Artillery Officer. The production of ammunition for light and medium artillery was handled by the Chief of Supply and Administration, and the Artillery Branch cooperated with him for supplying the Replacement Army with ammunition for training and field tests.

The main duty of the Ammunition Section, therefore, lay in the development of ammunition in cooperation with the Ordnance Office. Increased range was sought in two ways: through subcaliber, extra long, fin-stabilized projectiles, or by adding a jet propulsion device to the bottom of a normal projectile. range increase of about fifty per cent was achieved with subcaliber projectiles, but effectiveness was seriously reduced because of the smaller charge. Therefore the method was dropped for light and medium artillery and development was pursued further only for heavy artillery.

The jet propelling device affixed to the bottom of the projectile was released after the projectile had left the barrel, and fell two or three kilometers away. Thus it fell in the infantry zone, and the parts of the propeller unit were at first so large that they seriously endangered the Infantry. After long experiments a propeller unit was successfully manufactured which desintegrated into such small parts that the falling fragments were not dangerous. But this method still retained many disadvantages, and these projectiles could not be fired from guns with muzzle brakes. So this method of increasing range was only used for the heavy field howitzer where a range of sixteen kilometers was attained. In summer 1944 the first of these projectiles reached the front, but experience reports on their effectiveness did not reach the Artillery Branch by the end of the war.

Experiments were also made based on the Roechling-projectile, with a view to increasing the penetrating force. Again a subcaliber, extra-long projectile was involved, and although penetration results were very good, the range was seriously reduced and it was never put into service.

The hollow-charge projectile was the only armor-piercing projectile of the division artillery, and its penetration was constantly improved. However, it was suited for close combat only, and the division artillery had no projectile for effectively combating tanks at long range. The firing of flame thrower fuel seemed most promising for this type of combat. It was expected that it would be possible to lay fire zones through which tanks could not pass, but experiments proved that this fuel could not be fired through rifled barrels, and since the rocket was not yet ready for use, the division artillery would have had to have chemical projectors at its disposal for the purpose. Attempts to set enemy tanks afire through the use of thermite incendiary projectiles was unsuccessful.

Since the stock of captured ammunition for captured guns was very small, an important part of the work of the Artillery Branch was to provide ammunition for them. The main problem was to develop ammunition for the captured coast protection guns which could combat the enemy with ricochet or low burst fire, since impact projectiles were ineffective against landing boats. For firing against sea targets, observation was improved by the use of smoke generators in the projectiles or by specially coloring the blast smoke.

An attempt was made in cooperation with the Ordnance Office to reduce the multiplicity of fuses by the introduction of a simplified multipurpose fuse, but nothing notable was achieved in this direction. Since material for cartridges was scarce and not enough empty shells were returned from the front, numerous experiments were made to have the cartridges be refilled by the troops. The idea worked out quite satisfactorily.

Keeping up to date on firing tables, and the preparation of new firing tables for newly introduced guns and ammunition and for captured guns, was an extensive operation. The developments in gun powder conducted by the Ordnance Office were followed in detail. In the opinion of the Artillery Branch, the age of atomic energy should be the signal to abandon gun powder in favor of other propellants. In particular it was hoped to eliminate muzzle blast, muzzle flash, and muzzle-blast smoke, since these three discharge phenomena were so apt to betray firing positions. It was also felt that an increased range might have been attained through this development.

11. Observation Artillery. The equipment of the observation artillery was subject to constant improvement during the entire war as a result of close cooperation with the Ordnance Office. The No 40 oscillograph with automatic

developer was introduced for the sound ranging batteries, as was an evaluating device in the form of a mechanical computer in which time differences were transferred directly from the film to the chart, upon which the target point was directly indicated*. A slide rule for sound evaluation was introduced for reconnaissance and fire adjustment, and the sound transmitter was improved in such a way that the sound transmitter stations and the receiver could be switched on automatically by the Chief Operator. The ranging microphones were equipped with sound sifters which reduced the disturbances on the films caused by airplane engines.

Intensive attempts were made by the instruction unit in cooperation with the Ordnance Office to develop a method of locating enemy batteries which were able to conceal muzzle blast, muzzle flash, and muzzle-blast smoke. Attempts to determine the location of enemy batteries seismographically (gun concussion at moment of discharge) of by means of heat waves (intersecting heat waves emitted at discharge) failed, as did the attempt to follow a projectile's trajectory through electrical measurements and thus to find the firing position. On the other hand, success was attained in locating enemy batteries by intersecting sounds produced by the projectile in its trajectory. This method was developed so far that German troops were able to use it from 1944 onward, but it was still very complicated and needed further improvement.

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* The apparatus was a device to facilitate the evaluation of film strips which indicated the impulses produced by shell sound waves. Formerly troublesome and time-consuming calculations had to be made in order to locate a position on the plan at the instant of firing, but this device enabled it to be done mechanically, more quickly, and more accurately - Author's clarification.

A new elevation plotting plan was introduced for the flash-ranging batteries, and they were equipped with a flash-ranging camera with which serial mosaics were taken of the enemy area from artillery observation stations. A study of these mosaics made it easier for the observer to locate enemy objectives which had been spotted on a map, thus accellerating artillery action against them. The instruction unit conducted experiments in filming the muzzle flash of enemy batteries by the flash-ranging stations in order to locate them with greater speed and precision through evaluating the films. By the end of the war the experiments had not yet been successfully completed.

After the experiments with the captive helicopter had been stopped and increasing enemy air superiority gradually reduced the success of balloon batteries, the Artillery Branch worked with the Luftwaffe on the development of a free flying helicopter. In addition to the pilot it was to carry two observers and the necessary equipment for reconnaissance and fire adjustment. It had been planned to use the helicopter for artillery direction by air and to equip every artillery regiment and the reinforcement artillery with them in order to make the Artillery independent of the Luftwaffe, who did not have sufficient observers available.

The helicopter was also expected to act as an elevated ranging station for the observation battalion from which it would be easier to take bearings on enemy batteries. To this end, a sighting device was installed under the pilot's seat which enabled him to remain precisely above a known point on the map while taking bearings on an enemy battery. Thus it was unnecessary, as in the case of captive balloons, to establish the exact location of the helicopter by intersection from the ground at the moment of taking bearings. It had also been planned to use the helicopter for a faster survey of the batteries and ranging stations by photography. By 1944 a helicopter meeting the requirements of the Artillery was available, but after the first machines had been constructed, production was suddenly halted in favor of the fighter plane program. Moreover the few finished helicopters were not assigned to the Artillery, but were used to supply mountain units.

The printing department developed a printing press for installation in army trucks, and the methods of printing and the chemicals required were continuously improved.

12. Weather Service. The equipment of the meteorological and direction-finding platoons was improved and a new weather gauge was introduced as a result of close cooperation with the Ordnance Office and with the weather service offices of the Luftwaffe. By joint action of the Luftwaffe and the Chief Artillery Officer, the meteorological and direction-finding platoons were committed in such a way that an interrupted artillery weather service existed along the entire front and the coastal areas. In keeping with the progress in rocket development, experiments were made in the installation of instruments in the V 2 for meteorological measurements in the stratosphere.

13. Army Magnetic Service. The Chief of the Army Magnetic Service was charged with carrying out magnetic surveys in areas for which only incomplete surveys were available. For this purpose he had at his disposal the newly established magnetic survey battery, whose surveying platoons were committed under his direction, and for whose training he was responsible. In cooperation with

the Chief of Mapping and Surveys, he saw to it that the deviation diagram was entered on all maps for the use of the troops. In addition, he was responsible for verifying the functioning of the magnetic needle of all aiming circles and establishing any deviations so that the troops could make accurate adjustments. In conjunction with the Panzer Troops Branch, he directed the installation of compasses in armored vehicles, and he also worked on the development of the prismatic compass.

14. Motorization and Communications. The Artillery did not pursue any research of its own in regard to motor vehicles, but the appropriate technical officer of the Artillery Branch followed all new developments in the field and checked them for value to the Artillery. In the field of communications, one of the major needs of the Artillery Branch was the development in conjunction with the Signal Branch of a lighter and handier radio transmitter with a greater range for service with advanced observers. This need had been met by the radio transmitter model I, but its production had been so delayed by air raids on the manufacturing plants that the troops could not be equipped with it until the end of the war.

15. The Artillery Group.

a. Army Antiaircraft Artillery Branch. By the beginning of 1944 the various subsections of the Army Antiaircraft Artillery Section of the Artillery Branch had become so important owing to increased formations that they were ganized into sections. Then, since the Chief of the General Army Office had intended to charge this agency with organizing and equipping units for the antiaircraft defense of the troops in the field, the Army Antiaircraft Artillery Branch was established on 1 March 1944 as an independent branch. It consisted of a Branch Chief and sections for Organization, Training and Activation, Equipment, Ammunition, Motorization, and Communications. There was no change in the nature or scope of its duties, since the problem of antiaircraft defense of field troops could not be solved due to lack of equipment.

b. Rocket Artillery Branch. Since the V 2 was likely to come into service in 1944, the formation of the first replacement and training battalion was begun during the autumn of 1943, and in the course of the following winter the formation of the first battalion for tactical duty was completed. In the manner a replacement and training battalion and a field battalion were organized in spring 1944 for the "Rheinbote" rocket. It soon became necessary to establish representation for this new branch at the General Army Office because the services and even the vehicles were of a specialized nature in this field, and the work could not be handled by the Artillery Branch. Consequently, the Rocket Artillery Branch was established on 1 June 1944 and was composed of a Branch Chief and sections for organization, training and activation, equipment and chemical, and motorization and special vehicles.

c. Formation of the Artillery Group. The Chief Artillery Officer and the Artillery Branch wanted to transfer the chemical projectors to the Artillery, and it was intended to assign this equipment, based on the rocket principle, to the Rocket Artillery Branch. In order to direct these three services according to uniform artillery viewpoints despite specialization, they were joined under the Artillery Group of the General Army Office on 1 July 1944. To avoid the responsibility of this "Group" becoming a delaying office, it consisted only of the Group Chief and one typist, who were assisted by the subsections of the Artillery Branch. The Army Weather Service, Army Magnetic Service, War Tables of Organization, Finance, and Record Offices were placed under the immediate supervision of the Group Chief.

The Chief of the Artillery Group represented the interests of the Artillery with the General Army Office, the Chief of Training, the Inspector General for Officer Replacements, the Army Ordnance Office, and the Army Field Ordnance Service. He was subordinate to the Chief of the General Army Office and the Chief of Training, and his executive offices were the three service branches whose chiefs were subordinate to him. Nothing was changed in the service branches in regard to composition and work procedures through their subordination to the Group.

III. IMPORTANCE

The same conditions mentioned as applying to the Chief Artillery Officer with the Army Commander in Chief apply to the importance and methods of exerting influence of the Artillery Branch and the Artillery Group. This was largely due to the extremely close cooperation existing between the Artillery Branch and the Chief Artillery Officer.

CHAPTER 4

THE CHIEF ARTILLERY OFFICER WITH THE ARMY HIGH COMMAND

During the course of the war it became increasingly evident that it was not wise to limit the Chiefs of Arms and Services with the Army Commander in Chief or the Chief of the Army General Staff to duties relating only to the Field Army, and thus restrict their influence in the Replacement Army. Toward the end of 1944, the Chief of Arms and Services were subordinated after great difficulties to the Chief of the Army General Staff and the Commander of the Replacement Army. The title of the artillery representative became Chief Artillery Officer in the Army High Command, and the organization and chain of command are illustrated in appendix 1.

Even though this arrangement was not entirely satisfactory, it nevertheless made the Chief Artillery Officer the artillery adviser to the Commander of the Replacement Army, and thus responsible for the training of the Artillery in that army and at the artillery schools, and he could now insure that the Artillery of both Armies was trained along uniform principles.

In this reorganization it would have been more practical if the Artillery Group in the General Army Office had not been placed under the staff of the Chief Artillery Officer, but rather that the Chief of Staff of the Chief Artillery Officer and the Chief of the Artillery Group should work side by side under the Chief Artillery Officer. The Chief of the Staff of the Chief Artillery Officer represented the interests of the Field Army primarily, and the Chief of the Artillery Group those of the Replacement Army. The decision as to whose opinion should prevail in regard to the formation of new units remained with the Chief Artillery Officer.

Unfortunately the reorganization did not result in placing the Chief of Chemical Warfare Troops under the Artillery, as had been repeatedly requested by the Chief Artillery Officer. Since he felt that any further gun development should be attained through the use of rockets, he had to be in a position to influence the development of chemical projectors. For the development of rocket weapons as such, this power had been granted to him by the inclusion of the Rocket Artillery Branch in the Artillery Group, but this was not done in the case of the chemical projectors which might take over important functions hitherto left to the Artillery if their potentialities were exploited. Yet experience at the front had shown how important it was to assign chemical projectors to the Artillery, and every chemical projector battalion at the front had been placed under the artillery commander in the sector.

The ideas of the Chief Artillery Officer regarding top-level organization of the Artillery (the Artillery Inspector) are outlined in appendix 2.

In the course of the war many problems which did not reach a final solution occupied the Chief Artillery Officer. Thus he felt that all artillery functions should have been handled by the Artillery, trained as it was along basic principles. He considered that it was wrong for the infantry to develop its own Artillery (infantry guns), for in doing so, it had to overcome anew all the difficulties which arise when a new weapon is first introduced, all of which had been solved by the Artillery long ago. The same could be said of the development of antitank weapons, to a certain extent of armor protected guns on tanks, and finally of antiaircraft guns. It should have been the function of the Artillery to develop and to introduce only such weapons as corresponded to the type of fighting for which they had been requested and to the many tasks to which they might have to be adapted.

It should have been insisted upon that all these weapons be committed according to a uniform plan so as to achieve maximum performance. War experiences had taught, for instance, that the Infantry regiment commander who obtained best results was the one who considered the Artillery Battalion Commander in his sector as his own Artillery Commander, and placed his infantry and antitank guns under his command. This enabled him to coordinate and make the most effective use of the entire Artillery available. The Infantry with its mortars had enough heavy arms under its immediate command that it could place the howitzer company under the Artillery for the purpose of organizing points of main effort. The Commander of the Infantry Regiment was so tied up with the tactical command of his unit that he could not uniformly direct fire in his sector. The consequence was often that the heavy arms of the Infantry were distributed among the battalions, and the attempt to establish centers of gravity through fire often failed. The Commander of the Artillery battalion was in the best position to use all heavy weapons in coordination, and in accordance with the plan of the Infantry Commander.

The problem of constructing special antitank guns for the Infantry was solved toward the end of the war with the assignment of assault gun companies to the infantry regiments, replacing the existing antitank artillery. These regiments were equipped with assault guns developed by the Artillery.

The problem of Army air reconnaissance and Army antiaircraft artillery has already been dealt with. But in connection with the present topic, it should again be pointed out that in the opinion of the Chief Artillery Officer, the cooperation between the Luftwaffe and the Army on air reconnaissance and artillery action against reconnoitered objectives fell far short of being equal to the need. Even the means of communications between airplane and firing battery were completely inadequate. In a properly equipped modern army, ground observation should be supplemented by an artillery observer in an airplane from which he can direct the fire of his battery. Helicopters seemed particularly suited for this purpose, but unfortunately the Artillery did not receive them.

In the course of the war wear and tear on men and materiel became greater and greater. The question arose whether one could still justify such a great outlay of men and motor vehicles (24 motor vehicles for a motorized battery) to bring the four guns of a battery into action. A suggestion strongly considered was that of maintaining the existing number of guns in an artillery regiment, but reducing the three batteries per battalion to two with six guns in each. It was hoped that almost a third of the men and material would be saved by this change.

But much as these savings would have been welcomed, it was shown in numerous exercises that the training status of the battery commanders at the time was not commensurate with such a command, and even this capacity would diminish in the course of the war. Another disadvantage was that the number of observation posts to be manned with six batteries was insufficient to cover the sector of a division. Moreover, the width of the sector generally required a breaking up into half-batteries, which in turn generally had to detach a gun for special duties (such as antitank defense), so that the half-batteries often had only two guns left, and the area that could be covered by their fire seemed too small. The economy plan was rejected on the basis of the tests made, but the problem of saving men and material occupied the Chief Artillery Officer until the end of the war. With the exception of a few economy measures which did not materially affect the situation, no practical results were obtained.

In the opinion of the Chief Artillery Officer, the introduction of new equipment should take place only after very careful testing, in order to avoid set-backs and not to shake the faith of the troops in new equipment. Although the time available for development of a new piece of equipment is curtailed in wartime, careful testing must nevertheless take place before its delivery to the Field Army. Unfortunately the High Command had lost the necessary composure to wait for the tests, and against the advice of the Ordnance Office, the Chief Artillery Officer, and the Artillery Branch in the General Army Office, weapons and ammunition were frequently sent to the front which were not yet ready for introduction. The field tests, so to speak, took place against the enemy, and often the troops were not in a position to carry out these tests in a systematic fashion and some set-backs resulted.

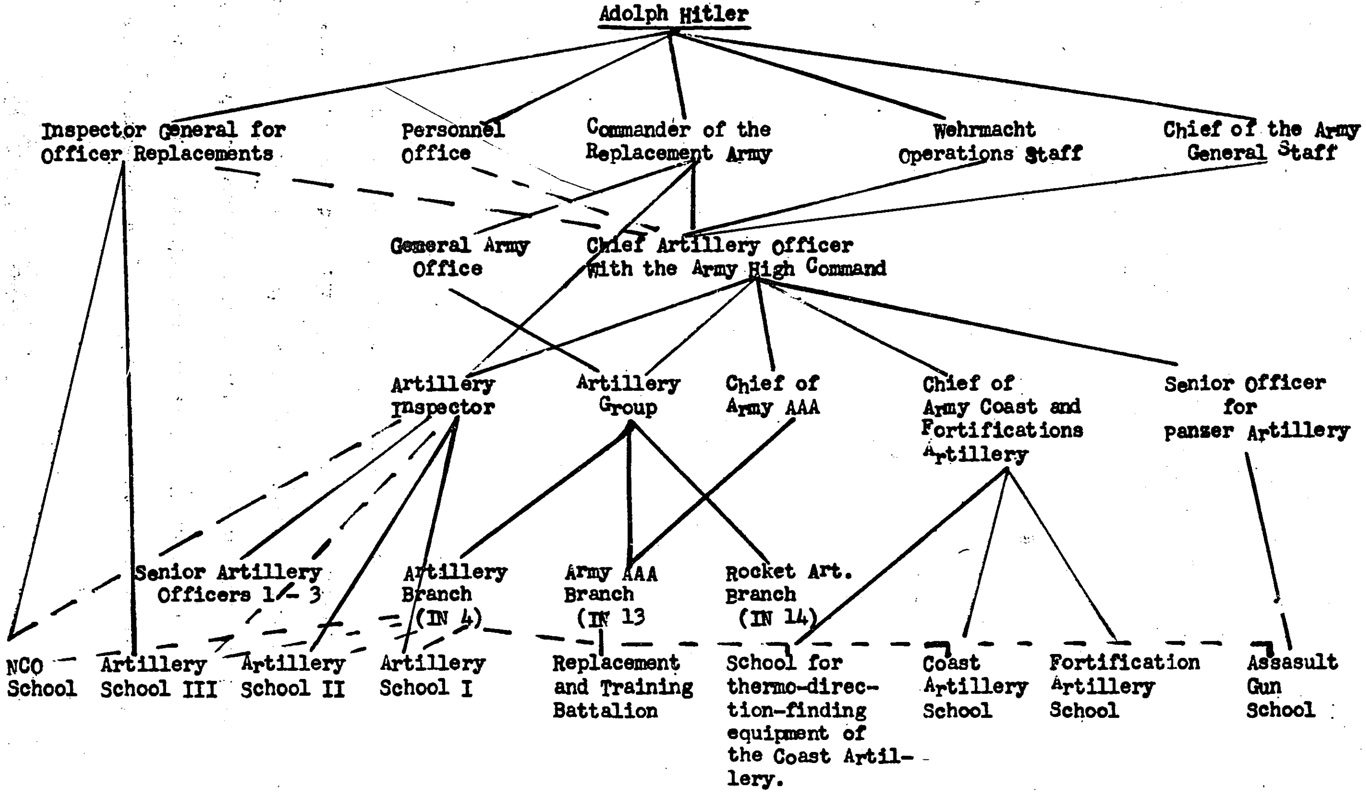
Some experience with the mortar were particularly remarkable. An armament plant had had an idea for an improved mortar, which would be much more economical in its production than the mortar 18. When the first test model had been produced and the first fire tests showed favorable results, Hitler heard about it. Without waiting for further tests, especially with regard to the ammunition which presented some special difficulties, large-scale production was ordered along with the formation of several battalions. When the battalions had been activated - with the ammunition still in the experimental stage and with the mortar itself still showing a few initial defects - the supreme command ordered their transportation to the front against the advice of the responsible offices. The ammunition caused several reverses, and our own troops suffered considerable casualties from it. Confidence in this weapon, which certainly would have given a good performance after systematical testing, was destroyed, and the troops equipped with it were bitterly disappointed. The same thing happened in many fields of development, including the rocket, but the Chief Artillery Officer could not change the state of affairs.

With the decline in the fighting power of combat troops, the importance of the Artillery increased. In order to regain offensive power in the winter of 1944/1945, and to be able to give the Infantry the necessary artillery support, the Chief Artillery Officer was ordered to move a thousand guns to the front in October 1944. On his suggestion ten artillery corps were formed each containing six battalions of three batteries. Of these, the light batteries contained six, and the heavy batteries four guns. The command staff was assigned fire-control batteries and small observation battalions. Inasmuch as the required guns could not be provided by new production, captured and antiaircraft guns had to be included, but in general no great difficulty was encountered with regard to other firing equipment and personnel. Due to the shortage of materials, not all corps could be equipped with fire-control batteries and observation battalions, and the supply of motor vehicles was totally inadequate, with the result that complete mobility was not achieved. Nor was the ammunition supply question easily solved, since all artillery corps had different guns, and since the stock of captured ammunition was often low.

In spite of these shortages, the formations were completed on schedule, and the artillery corps fully justified themselves in offensive and defensive action. The High Command was once more in a position to form strong artillery centers of gravity and to commit its senior artillery staffs to the direction of this artillery strength. But by spring 1945 the artillery corps could no longer play their full part because of inadequate motorization.

ORGANIZATION OF THE CHIEF ARTILLERY OFFICER WITH THE ARMY HIGH COMMAND AT THE BEGINNING OF 1945

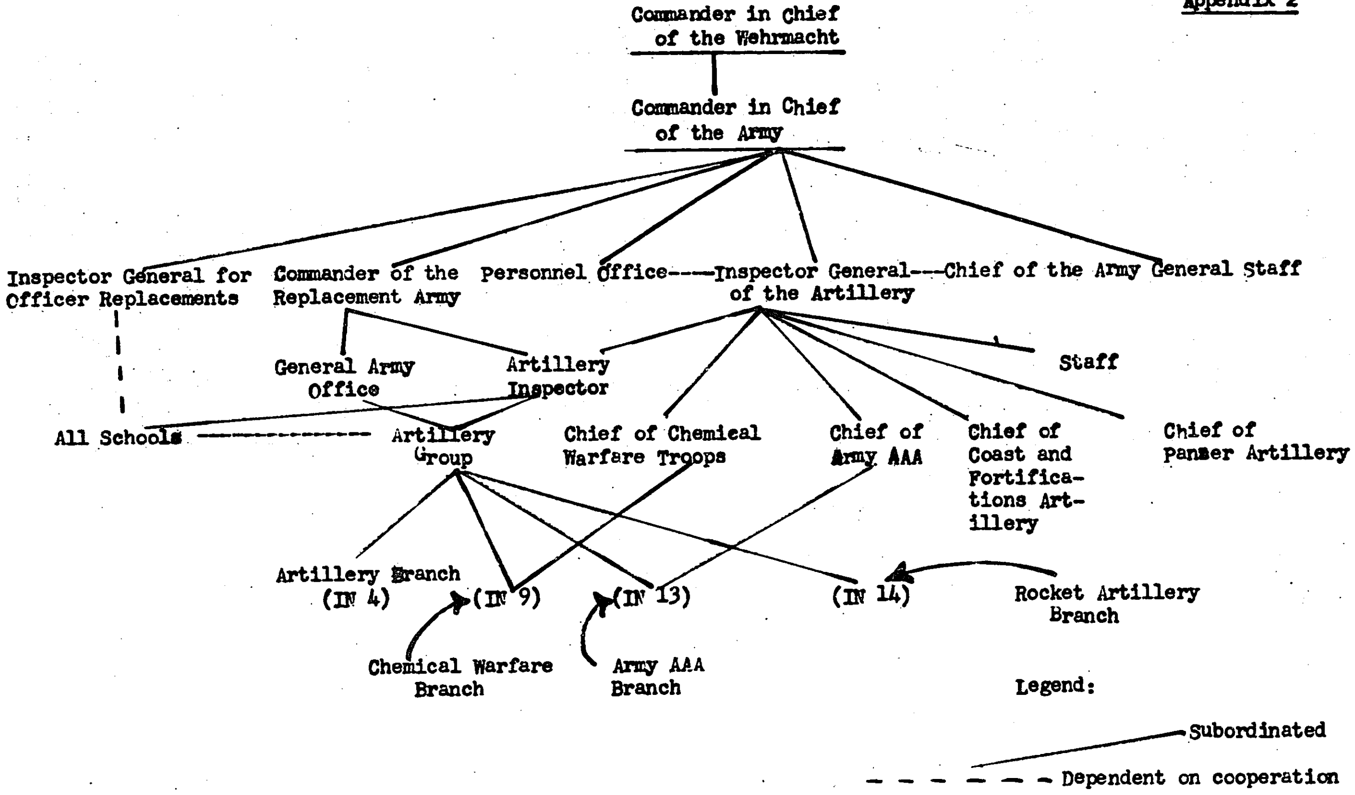
APPENDIX 1


Adolph Hitler
Inspector General for Officer Replacements
Personnel Office
Commander of the Replacement Army
Wehrmacht Operations Staff
Chief of the Army General Staff
General Army Office
Chief Artillery Officer with the Army High Command
Artillery Inspector
Artillery Group
Chief of Army AAA
Chief of Army Coast and Fortifications Artillery
Senior Officer for panzer Artillery
Senior Artillery Officers 1 - 3
Artillery Branch (IN 4)
Army AAA Branch (IN 13
Rocket Art. Branch (IN 14)
NCO School
Artillery School III
Artillery School II
Artillery School I
Replacement and Training Battalion
School for thermo-direction-finding equipment of the Coast Artillery.
Coast Artillery School
Fortification Artillery School
Assasult Gun School

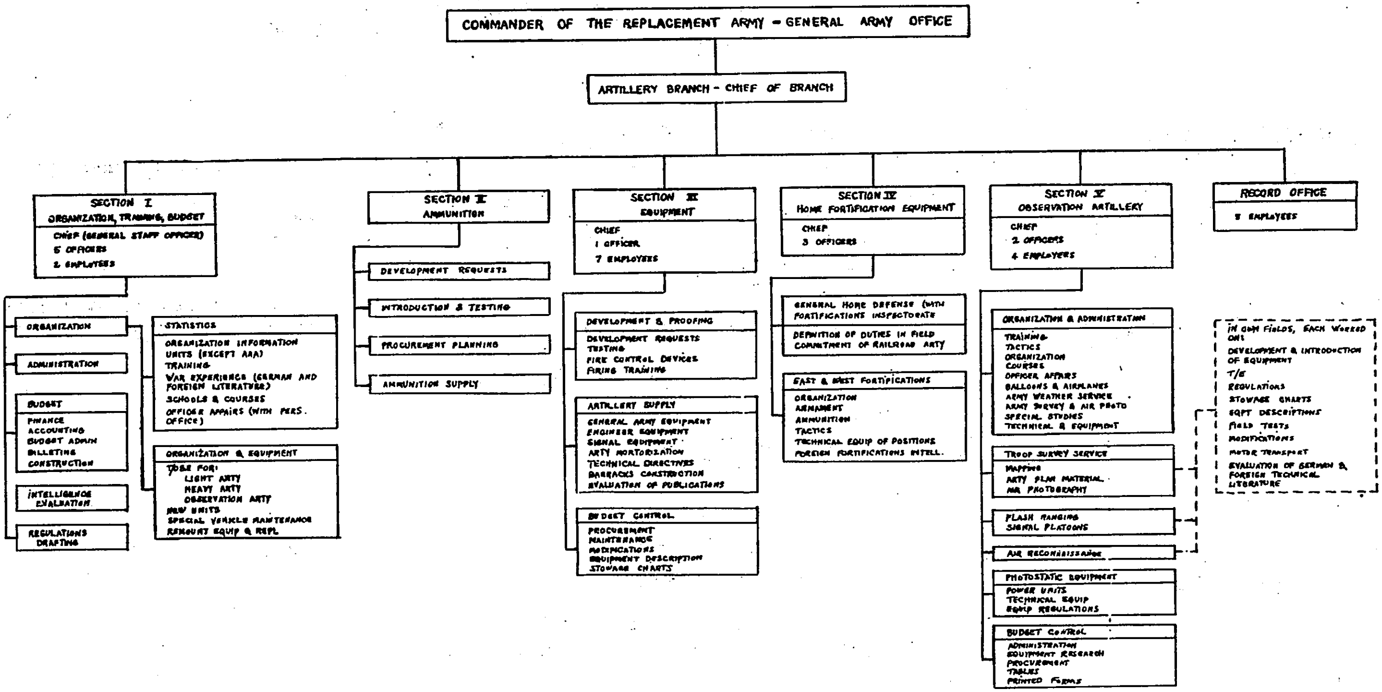
Suggestion for the Organization of the Chief Artillery Officer

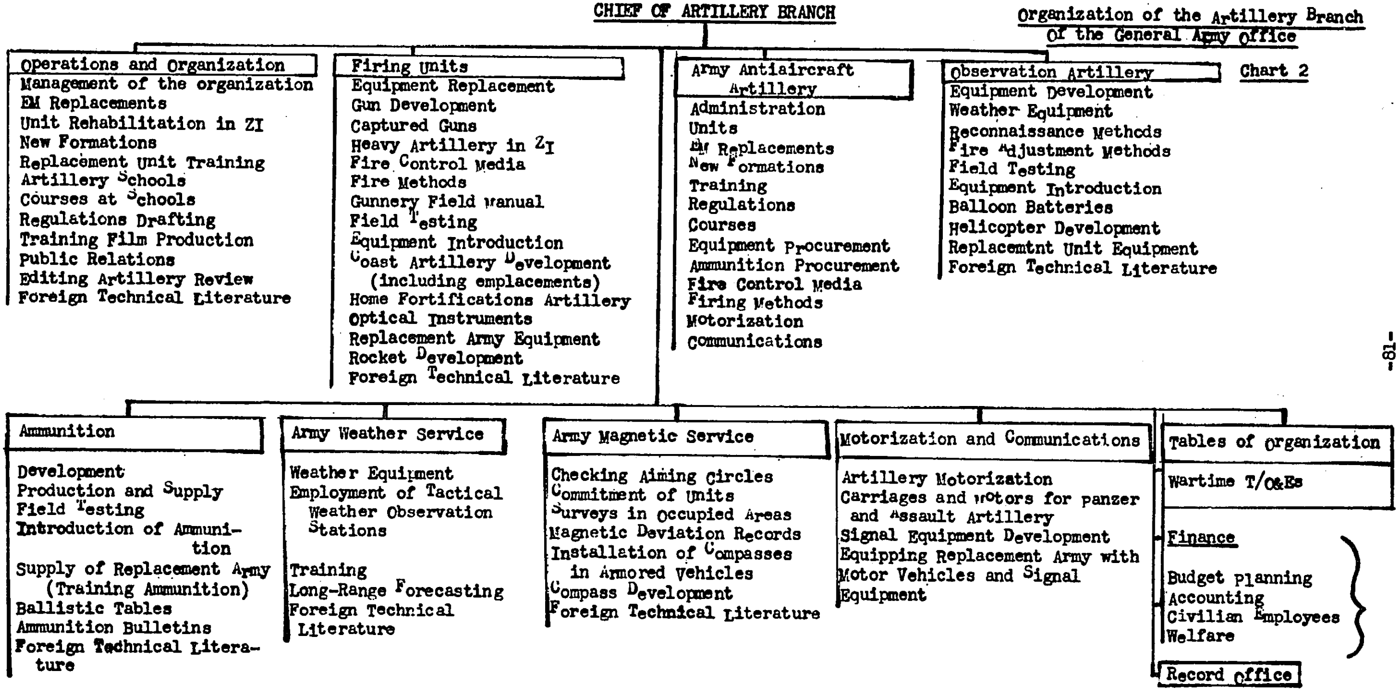
(Inspector General of the Artillery)

Appendix 2


Commander in Chief of the Wehrmacht
Commander in Chief of the Army
Inspector General for Officer Replacements
Commander of the Replacement Army
Personnel Office
Inspector General of the Artillery
Chief of the Army General Staff
General Army Office
Artillery Inspector
Staff
All Schools
Artillery Group
Chief of Chemical Warfare Troops
Chief of Army AAA
Chief of Coast and Fortifications Artillery
Chief of Panzer Artillery
Artillery Branch (IN 4)
(IN 9)
(IN 13)
(IN 14)
Rocket Artillery Branch
Chemical Warfare Branch
Army AAA Branch
Legend:
Subordinated
Dependent on cooperation

MS # P-041k
Chart # 1





Organization of the Artillery Branch of the General Army Office

Chart 2

CHIEF OF ARTILLERY BRANCH

Operations and Organization
- Management of the organization
- EM Replacements
- Unit Rehabilitation in ZI
- New Formations
- Replacement Unit Training
- Artillery Schools
- Courses at Schools
- Regulations Drafting
- Training Film Production
- Public Relations
- Editing Artillery Review
- Foreign Technical Literature

Firing Units
- Equipment Replacement
- Gun Development
- Captured Guns
- Heavy Artillery in ZI
- Fire Control Media
- Fire Methods
- Gunnery Field Manual
- Field Testing
- Equipment Introduction
- Coast Artillery Development (including emplacements)
- Home Fortifications Artillery
- Optical Instruments
- Replacement Army Equipment
- Rocket Development
- Foreign Technical Literature

Army Antiaircraft Artillery
- Administration
- Units
- EM Replacements
- New Formations
- Training
- Regulations
- Courses
- Equipment Procurement
- Ammunition Procurement
- Fire Control Media
- Firing Methods
- Motorization
- Communications

Observation Artillery
- Equipment Development
- Weather Equipment
- Reconnaissance Methods
- Fire Adjustment Methods
- Field Testing
- Equipment Introduction
- Balloon Batteries
- Helicopter Development
- Replacemtnt Unit Equipment
- Foreign Technical Literature

Ammunition
- Development
- Production and Supply
- Field Testing
- Introduction of Ammunition
- Supply of Replacement Army (Training Ammunition)
- Ballistic Tables
- Ammunition Bulletins
- Foreign Technical Literature

Army Weather Service
- Weather Equipment
- Employment of Tactical Weather Observation Stations
- Training
- Long-Range Forecasting
- Foreign Technical Literature

Army Magnetic Service
- Checking Aiming Circles
- Commitment of Units
- Surveys in Occupied Areas
- Magnetic Deviation Records
- Installation of Compasses in Armored Vehicles
- Compass Development
- Foreign Technical Literature

Motorization and Communications
- Artillery Motorization
- Carriages and Motors for panzer and Assault Artillery
- Signal Equipment Development
- Equipping Replacement Army with Motor Vehicles and Signal Equipment

Tables of Organization
- Wartime T/O&Es

Finance
- Budget Planning
- Accounting
- Civilian Employees
- Welfare

Record Office